1-1-1962

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AN EXPERIMENTAL EVALUATION OF THE PERCEPTION OF SIMULATED LOVE AND ANGER BY SCHIZOPHRENIC AND NORMAL SUBJECTS

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Submitted in partial fulfillment for the degree of Ph.D.

University of Massachusetts

1962

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Introduction

The purpose of this research study is to compare schizophrenic and normal subjects on their perception of scenes portraying love and anger. This comparison is based on the evaluations made by these subjects of four scenes of simulated social interaction representing the above mentioned emotions.

Theories of Schizophrenia

Cameron: Cameron (1938a; 1938b; 1939; 1946, pp. 50-64; 1947; 1951, pp. 283-306) and Cameron and Magaret (1951) hypothesize that schizophrenia represents a withdrawal which leads to deterioration of socially determined role-taking and social skills. In the early stages of this withdrawal, shared emotional participation is partially retained (Cameron, 1946, pp. 50-64; Cameron, 1947). As the disorder progresses there is less conformity to roles which the normal person can utilize and understand. This leads to emotional incongruity between the schizophrenic and the normal, as well as to their inability to share social roles.

Cameron (1947) proposes that it is not just a question of disorganization. The schizophrenic has never acquired adequate social skills in many areas of functioning. He is unable to check the validity of his

interpretation of others by taking their social roles. The long sequence of experimenting with different social roles during childhood development is absent or retarded in the schizophrenic. The resulting desocialization, based on this inadequate role testing, leads to the use of private fantasy, individualistic interpretation, and inadequate validation.

Cameron (1951, pp. 283-306; 1947, pp. 485-489) shows that clarity in perceptual organization depends as much upon what is excluded as on what is admitted. In social perception the individual reacts to certain aspects of his environment and rejects other details. Thus, there is a readiness to react selectively to some parts of the social world. In the schizophrenic, his inadequacies may dominate his perception and lead to the selection of cues of approval and censure that others do not perceive though they share this environment. Progressive reaction sensitization leads from selectivity in this area (i.e. love or anger cues) to further sensitization in the same area. Anxiety arising from sensitivity to threat and hostility increases selectively the tendency to respond to threats from the environment. The increased sensitivity to hostility and approval then further raises anxiety. The anxiety arising due to this

sensitivity is avoided, in the schizophrenic, by a withdrawal into private fantasy which tends to prevent recognition. Since a socialized human being must deal with reciprocal behavior of others, a breakdown in social communication becomes inevitable. This anxiety arises in individuals characterized by chronic insecurity and feelings of unworthiness.

There is a great deal of similarity between the views of Cameron, and the position taken by Sullivan (1946; 1953; 1954; 1956). Both weight heavily the social aspects of the interpersonal relationships of schizophrenics, and focus on feelings of security as well as on methods for protection against lowering of self esteem in social interaction.

Sullivan: Sullivan (1949a; 1949b; 1949c; 1954, pp. 101-112; 1956, pp. 304-360) states that the importance of maintaining euphoria is so critical that it leads to the development of a system of processes and states called the self-system. This system is primarily concerned with the detection of experiences that evoke anxiety, with techniques for the avoidance of anxiety, and with the maintenance of security in interpersonal relations. The self-system has its origins in the relationship of the infant to the mothering one. Contact with significant

others during development gives rise to techniques that deal with anxiety provoking situations. In this theory, anxiety is equated with a lowering of self esteem, and the methods of avoiding anxiety are called security operations. These security operations are sensitized to signs of approval and disapproval, and may stand in the way of the schizophrenic's gaining experience that would remedy early inadequacies (Sullivan, 1954, pp. 138-142).

One security operation that may impede remedying early inadequacies is selective inattention. Selective inattention provides a means of maintaining security by controlling the percepts that come into awareness. In the schizophrenic, where the self-system is threatened, anxiety evoking conditions are excluded from awareness. The whole process is automatic and effortless. Here, the critical conditions which evoke anxiety are not attended to, i.e., the relevant is excluded (Sullivan, 1956, pp. 38-64).

Sullivan (1953) concludes that the low self esteem, characteristic of the schizophrenic, leads to social isolation. For the schizophrenic, any interpersonal situation involves a threat to self esteem. This provides difficulty in dealing with both friendly and unfriendly social interactions. Sullivan (1956, p. 67) indicates

that this is based on the extreme importance of knowing whether people are expressing like or dislike. Thus, both signs of intimacy and anger give rise to difficulties in interpersonal relations for the schizophrenic.

Fromm-Reichmann: Fromm-Reichmann (1939; 1942; 1946; 1947; 1948; 1950) primarily stresses the Sullivanian viewpoint in regard to schizophrenia. There is more emphasis, however, on sensitivity to the perception of anger and affection in other persons. The patient's total behavior is oriented about positive and negative relationships to the social environment. Each interaction is a repetition of the original traumatic rebuffs of infancy. Yet there is an intense longing for warm human contact and intimacy. These desires cannot be faced due to the expectation of further frustration. It is due to the necessity of preventing further rebukes and avoiding intimacy that the schizophrenic has withdrawn from interpersonal interactions.

Other Theorists: A number of other theorists also stress the sensitivity and defensiveness of the schizophrenic to signs of anger and affection in social interaction. Hill (1955, pp. 45-67) indicates that the schizophrenic's adequacy in perceiving and evaluating the human environment is lost. He further indicates that their

sensitivity to anger is dependent upon relationships to the parents. In a similar manner, Federn (1952, pp. 117-165) points out the necessity of avoiding blame, admonition or depreciation when dealing with the schizophrenic. The slightest sign of aggressiveness is to be avoided. Eissler (1951) speaks of the special sensitivity of the schizophrenic in perceiving the slightest traces of hostility in other people. Jackson (1961) emphasizes the hate and fear of people which suffuse the schizophrenic's interpersonal relations. Arieti (1955; 1961) deals with this topic as a fight against relatedness. The schizophrenic seems to move away from interpersonal situations due to their hostile, distrustful, and suspicious nature. On the other hand, Bellak (1958, pp. 3-63) stresses the fear of closeness characteristic of these individuals. Wexler (1951) suggests that untimely affection terrorizes the schizophrenic. In addition, Dunham (1944), in surveying the background of 42 schizophrenics, finds inhibition in establishing intimate contacts to be a common characteristic. Burnham (1961) relates the isolation and withdrawal of the schizophrenic to a strong linkage between anxiety and intimacy. Sechehaye (1961) stresses the simultaneous fear and desire for close intimate relationships in the schizophrenic. Will

(1961) states that, for the schizophrenic, intimacy implies anxiety. The need for intimacy developes in relation to the dread of anxiety, and comes to be associated with it. Powdermaker (1952) stresses the sensitivity to both anger and love stimuli. The need for affection is second only to his fear of it. Betz (1950) also points out the dual sensitivity to personal affection and to injustice or anger.

Empirical Evidence of Sensitivity to Anger and Intimacy Cues

Sensitivity to Human Cues: Several experimental studies have reflected the disturbing effects of human stimuli on the performance of schizophrenic subjects. Davis and Harrington (1957) presented a series of pictures to a group of 50 schizophrenics and 50 matched controls. The subjects were required to select the appropriate picture based on information supplied by the experimenter. One set of pictures contained human content, and another set was devoid of such content. When subjects were matched in terms of performance on nonhuman problems, schizophrenic and normal subjects differed in their ability to deal with human stimuli. When performance on human pictures was used to match subjects, there was no difference in their ability to solve nonhuman problems. Whiteman (1954; 1956) compared 31 schizophrenic subjects with 31 nonpsychotic, matched controls

in terms of their performance on social conceptual problems and on formal conceptual problems. Developing a formal concept was dependent upon abstraction of noninterpersonal factors while forming a social concept required abstraction in situations involving people. The controls performed significantly better on both types of tests. The schizophrenic subjects, however, were significantly poorer on tests of social concepts than on formal concept tests. An impairment of the abstract attitude is not sufficient, then, to account for the disturbance on the social concept test.

McGaughran and Moran (1956) compared 37 male schizophrenics with 40 matched, nonpsychotic, hospitalized patients. The results of an object sorting task were analyzed on the basis of two dimensions. The public-privatedimension analyzes the degree to which the principle underlying the grouping is shared and freely communicated by the persons using it. The open-closed dimension depends on the number of attributes that are used to determine the grouping. On the basis of this analysis, the schizophrenic group demonstrates a loss of social communication without evident impairment of abstract ability. That is, the schizophrenic group differed only in terms of the public-private dimension of

analysis. McGaughran and Moran (1957), also, showed that a group of brain damaged subjects was similar to a matched group of schizophrenics in terms of the private (not open to social communication) nature of their concepts. The two groups differed in that the brain damaged group was less adequate in abstract functioning. Since the brain damaged group included subjects with psychotic reactions, the private nature of their concepts represents schizophrenic functioning in both groups. Both White (1949) and Senf, Huston and Cohen (1955) have shown that schizophrenic subjects tend to avoid interpersonal themes in their language behavior. It is evident, then, that schizophrenic subjects are impaired in their social conceptualization and interpersonal communication.

Perception of Social Interaction: There is a further series of experimental studies which tend to show that schizophrenics are unable to share common emotional experiences, and to adequately take the role of other persons. Diamond (1956) equated a group of 30 male schizophrenics with a similar group of male drug addicts, and tested the two groups in terms of their susceptibility to social modification of their responses to an autokinetic stimulus. Although the schizophrenics modified their responses in the presence of another member, the change

was significantly less than in the case of the controls. In addition to this, the schizophrenic group deviated significantly further from the judgments of the pair member when the latter was no longer present. The difficulty was explained in terms of the inability of the schizophrenics to utilize an external frame of reference which, in this case, was the response of another person. Schooler and Spohn (1960) also studied the effects of other person's judgements on the performance of schizophrenic subjects. They compared 48 regressed schizophrenics and 48 matched, hospitalized, TB patients in terms of the effect of another person's influence on their ability to judge the length of a series of lines. There was no difference between the groups in terms of conforming errors (i.e. errors caused by the influence of other persons in the group), but the regressed schizophrenics did produce significantly more non-conforming errors (i.e. errors which did not conform to the social pressure, or to the type of stimulus presented). Thus, while there is still a high degree of responsiveness to others in the behavior of regressed schizophrenics there is also a tendency towards idiosyncratic performance in relation to interpersonal situations. Differences in the degree of conformity behavior might also have been

found if a less deviant control group had been utilized.

Senf, Huston and Cohen (1956) compared a group of chronic schizophrenics, a group of acute schizophrenics, a group of manic depressive patients and a group of neurotic subjects in terms of a set of cartoons that were chosen to depict simple familiar social interactions. While none of the groups had any difficulty in simply describing the situations, the two schizophrenic groups had a great deal of difficulty in understanding social interactions. Milgram (1960), using a multiple choice word association test devised to estimate role taking ability, found that schizophrenic subjects were less adequate than normals in this respect. Milgram (1961) found a similar deficit in role taking ability with 24 female schizophrenic patients.

Helfand (1956), contrary to this, found a group of privileged schizophrenics (i.e. being on privileged status in the hospital) to be hypersensitive to the feelings of others. The privileged schizophrenics were more sensitive than a group of normals who were more sensitive than a group of chronic schizophrenics. In this study the subjects sorted 80 items to reflect their own attitudes, and then attempted to sort the same 80 items in terms of the attitudes of another person whose biography was read to them. Unfortunately the biography used

was that of a former patient (i.e. a better integrated schizophrenic). This would explain why more integrated schizophrenics sorted items in a more similar manner. In spite of this inadequacy, normals responded in terms of preconceived ideas of other people (i.e. socially shared ideas), privileged schizophrenics reacted in terms of their own feelings in that they shared many feelings with a patient like themselves, and chronic schizophrenics responded in terms of their own idiosyncratic fantasy. Flavell (1956) compared 20 normal and 24 matched schizophrenic subjects in terms of their ability to select words which are most similar to a given word in an essential-abstract manner. While the normals, as a group, functioned more adequately, schizophrenics who were able to perform this task well were those who were most adequate in everyday social interaction. Thus adequacy in interpersonal relations was related to superior performance in schizophrenics.

Censure, and Love Cues: This section reviews the research which is directly related to the schizophrenic's sensitivity to love and/anger cues. Rodnick and Garmezy (1957) have proposed that social censure (in the form of failure, criticism or threat) is functionally related to behavioral disturbances in schizophrenics. Primarily,

the schizophrenic's disturbed performance is due to a motivational deficit. Therefore, if adequate attention is paid to insuring sufficient interest and cooperation, schizophrenic subjects are able to function as adequately as normals. This increased level of performance is rather tenuous, and may be disturbed by minimal cues of censure. The effect of censorious stimuli on the schizophrenic is to produce preoccupation with personal concerns, anxiety and withdrawal. Rodnick and Garmezy (1957) also suggest that the usual diagnostic subtypes of schizophrenia are inadequate for the prediction of behavior. The Phillips Scale (Phillips, 1953), which rates patients in terms of the adequacy of their premorbid adjustment, has proved to be an adequate means of categorizing schizophrenics. The good premorbid group generally performs more like the normal controls while the poor premorbid group generally shows the greatest disturbance on the tasks measured.

A number of studies have shown that schizophrenics, when exposed to social censure, demonstrate a disruption of performance (Garmezy, 1952a; Garmezy, 1952b; Johannsen, 1961; Webb, 1955; Hellman, 1961; Bleke, 1953; Bleke, 1955; Olson, 1958). Other studies by Atkinson and Robinson (1961), and by Losen (1961) fail to support these results.

Differences in the selection of subjects, the type of tasks used, and the adequacy of experimental techniques explain the inconsistency here, but the weight of the evidence supports some disturbance of functioning by schizophrenics when confronted with social censure.

In addition to the above experiments where social reward and social punishment are presented by informing the subject that he has made a "right" response or a "wrong" response, an additional series of studies deals with schizophrenic performance on pictorial materials. For example, Dunn (1954) presented four sets of pictures to a group of 40 schizophrenics and 40 controls hospitalized for medical purposes. The four scenes represent a whipping scene, a scolding scene, a feeding scene and an impersonal scene. The schizophrenic group is significantly less effective in discriminating pictures of scolding than are normals, and they show the same tendency on the whipping scene. Neither the feeding scene nor the impersonal scene led to differences in discrimination. The failure in discrimination is, for the most part, interpreted as a withdrawal response due to personal themes interfering with the demands of the task. Turbiner (1961) presented three series of five pictures each to a group of 20 schizophrenic and 20 normal subjects.

These sets of pictures represented negative affect (reprimand), positive affect (desire for closeness and acceptance), and neutral geometric designs. The schizophrenics showed poorer discrimination than normals on the negative and on the positive picture series while there was no difference on the neutral pictures.

Moriarty (1961) compared the concept attainment of normals, good premorbid schizophrenics, and poor premorbid schizophrenics utilizing approving and disapproving interpersonal pictures. He found that all three groups differed in concept attainment when the problems were embedded in interpersonal stimuli. The schizophrenic groups, however, did not show greater decrement in concept attainment performance than did normals in the transition from approving cards to disapproving cards than in the transition from approving to approving cards. The trends were in the expected direction (i.e. poor premorbid schizophrenics showed the greatest decrement, good premorbid schizophrenics the second greatest decrement, and normals showed the least decrement). Reisman (1960) utilized a series of pictures that varied along a dimension of threat or non-threat. He found that only the reactive group of schizophrenics was affected in terms of speed of sorting

a series of cards. A process group of schizophrenics and a group of normal controls were not affected. His explanation is that the withdrawal behavior of process schizophrenics is so well developed that a noxious environment is no longer an effective stimulus. The reactive group, however, is still disrupted by the anxiety derived from the set of noxious photographs. Zahn (1959) associated positive and negative meanings to two pictures (i.e. scolding and feeding pictures) by means of differential reinforcement. Then size estimates were made of the pictures. The results indicated a high degree of anxiety in the good premorbid group (in terms of the Phillips Scale), and a predominance of avoidance responses in the poor premorbid group in relation to pictures associated with negative reinforcement and on the scolding picture.

Most of these studies, when they have attempted to deal with the specific type of stimulus, have used only censorious or anger stimuli without attention to scenes of intimacy. Reward situations obviously do not correspond to close affectionate interpersonal relationships. The results that Turbiner (1961) obtained for his positive condition appear to bear directly on this problem. He defined the positive affect pictures as representing

a desire for closeness on the part of the central female figure in the pictures. The results of this study indicated poorer discrimination for schizophrenics. Buck (1960) has attempted to deal with the perception of both anger and love in terms of simulated scenes of social interaction. A group of 30 schizophrenics was matched with a group of 30 nonpsychotic controls. The schizophrenic group used was characterized by a good premorbid adjustment on the Phillips Scale. It was found that the schizophrenic group differed significantly in the manner in which they perceived a simulated scene of anger, but they did not differ in terms of their interpretation of a simulated scene of love. These differences on the anger scene are indicative of the sensitivity of schizophrenic subjects to stimuli suggestive of censure. The similarity of the schizophrenic group to the normal group on the love scene is seen as being related to the relative adequacy of these schizophrenic subjects in their premorbid sexual and social behavior (i.e. good premorbid).

It is evident then that social censure (i.e. threat to personal security) leads to many types of disturbances in the functioning of schizophrenics. A number of studies, however, have indicated that the withdrawal from stimuli

indicative of censure is not a generalized avoidance of all punishing events. A facilitation may result from simple biological stimulation as indicated in the studies of Cohen (1956), Rosenbaum, MacKavey and Grisell (1957), Lang (1959), Pascal and Swensen (1952), and Cavanaugh (1958).

In summary, it is quite evident that the schizophrenic is oversensitized to stimuli suggestive of anger and censure. There is also some indication of sensitivity to signs of intimacy. This sensitivity leads to protective mechanisms (i.e. withdrawal) which allow the schizophrenic to avoid the anxiety arising from these stimuli. The effects of social censure, however, differ from the consequences of biological punishment. It has also been shown that schizophrenics can be divided into two groups that function differentially on the basis of their premorbid sexual and social adjustment (i.e. good and poor premorbid schizophrenics).

Perceptual Theory and Related Research

In speaking of the schizophrenic, there has been continual reference to the perception of stimuli or cues that are indicative of anger or love. These cues should lend themselves to experimental analysis. Impressions of emotions in others are based upon specifiable cues or combinations of cues which may be experienced

consciously or subconsciously. We gain almost immediate impressions of other people even on the first meeting. These impressions arise due to specific systems of stimulation i.e., the specific physical dimensions of the behavior exhibited by the person.

The Perception of Abstract Figures: Michotte (1950; 1952) has shown that such an analysis is possible. In a series of experiments dealing with the relationship between perception and the stimulus dimensions of perception, he has demonstrated that certain combinations of visual stimuli, well defined in terms of their physical interactions, can be related to certain specific impressions. The formation of these impressions is essentially dependent upon the physical system of stimulation. Michotte's research consisted of the manipulation of two rectangles in terms of specified patterns of movement. The subjects, however, did not perceive the rectangles in terms of geometric forms, but tended to compare their actions with human or animal actions. These comparisons implied the attribution of emotional states and attitudes toward the objects. In the reports given by these subjects, it is the kinetic structure of the stimulus situation which is most effective in giving rise to the impression, and the nature of the moving object is of secondary importance.

Heider and Simmel (1944) utilized a technique similar to that of Michotte (1950; 1952). They analyzed the impressions arising from the interaction of three moving geometric figures and a large stationary rectangle. This study also indicates that the objects give rise to impressions of the actions of animated beings. Again, it was shown that certain physical systems of stimulation can give rise to consistent impressions of emotions and personality characteristics. Heider (1944; 1955; 1958a, pp. 20-58; 1958b) also feels that more data are needed for the perception of people than for thing perception, and suggests that we primarily interpret actions and not physical characteristics (i.e. the form of the face, hair color, etc.)

Kates and Buck (1958; 1959) have shown that when two rectangular objects are presented in certain movement patterns, consistent impressions of these interactions may be reported. They have presented ten such movement patterns by means of a film to randomly selected groups of college sophomores. When such a movement pattern is characterized by movement of the two rectangles in physical contact, slow movement, approaching movement, simultaneous movement and stationary proximity, the impression of love is attributed to the

interaction of the rectangles. To the degree to which these physical cues are present in any one scene (i.e. movement pattern), it appears that the characterization of this scene becomes more consistently one of love, friendship and happiness. A second movement pattern has been shown to give the impression of anger and determination. The important cues for the attribution of this impression to the interaction seem to be the initial rectangle moving fast, the second rectangle moving slowly, successive movement, lack of stationary proximity and lack of movement in physical contact. Thus, it can be seen that a population of college students is readily capable of making inferences on the basis of minimal stimulus cues.

Tagiuri (1960), in dealing with a film showing a dot moving in a variety of paths as well as line drawings of the path used by the dot, also concludes that the inferences made by subjects can be related to identifiable physical characteristics of the path itself (i.e. straightness, oscillations, angularity, etc.). He also emphasizes the importance of movement in interpersonal perception. The movement he is concerned with is the displacement of the whole person through space rather than aspects of expressive movement such as gesture,

facial expression, and so forth.

Perceptual Readiness: It is obvious, then, that certain systems of physical stimulation can give rise to specific impressions of emotion. Bruner (1957) has presented a theory of perception that provides a basis for understanding the perception of emotions in other persons. Perception, according to Bruner (1957), represents the selective placement of a stimulus input into an appropriate category. Postman (1953) speaks of an acquired disposition to categorize events. The meaning attributed to a stimulus is derived from the class of percepts that it is grouped with (Bruner, 1957). In this sense accuracy of perception is defined in terms of a categorization that results in appropriate consequences. The recognition of environmental events, then, is dependent on the accessibility of categories for coding/or deriving their meaning. By category, Bruner (1957) means a rule for specifying the equivalence of input stimuli. Such a rule must specify: the critical properties required for category membership, the manner of combining such properties in inferring category membership, differential weighting of various properties, and the limits of acceptance. The accessibility of categories is not only dependent on the prob-

ability of certain events appearing in the external environment; it is also based on the individual's activity, needs and defences. The effect of need on structuring perception was demonstrated by Bruner and Goodman (1947). As cues in the external environment become more ambiguous, however, the person's responses come even more under the influence of internal needs (Bruner, 1957). Bruner and Postman (1949) and Postman, Bruner and McGinnies (1948) have also noted the importance of dominant needs in misperception.

Bruner (1957) goes on to suggest certain mechanisms that mediate perceptual readiness. The threshold for recognizing events varies primarily in terms of the number of alternatives for which the individual is set or prepared. Bruner (1951a; pp. 121-147; 1951b) and Bruner and Postman (1948; 1949) have previously spoken of expectancy or hypothesis. That is, the stimulus input is imposed upon an organism tuned to respond selectively to certain classes of events. Finally, Bruner (1957) proposes a gating process whereby anxiety arousing cues may block accessibility of categories. Therefore a stimulus event may register on the receptor systems, but not be accessible to awareness in terms of its appropriate category. In this case the stimulus

would lead the individual to respond in a different manner than he would if he had categorized the stimulus appropriately. For example, a stimulus suggestive of love may be categorized as surprise in an attempt to avoid anxiety.

The proposals of Klein (1951) show a great deal of similarity to those of Bruner (1957). Klein (1951) proposes the concept of Anschauung as a perceptual attitude that represents a personal mode of meeting the world. In this conception Anschauung is a style of organizing perception by regulating intake. This leads to Klein's formulation of a perceptual model that integrates preparatory or preperceptual processes with behavioral outcomes (Klein, 1956, pp. 140-160; Klein, 1959; Klein & Schlesinger, 1949; Klein, Holzman & Laskin, 1954; Klein & Krech, 1951). Executive intention leads to focusing on some particular area of the object field with more accuracy than other parts. There is, in addition, a hierarchical arrangement in terms of the perceptual prominence of different parts of the physical field. The physical organization does not, however, represent a one to one relationship to the executive intention which is directed by internal processes. The reconstructed object field cannot be equated with the

intentional field. This is due to the failure of some aspects of physical objects to register on receptor systems, and the fact that not all of the characteristics which achieve perceptual structure are available to consciousness. Both conscious executive intentions and wishes, which may not be available to consciousness, compete in terms of the aspects of the physical field that will receive perceptual structure. Thus sets or expectancies are created which lead to the selection of only certain parts of the physical field for attention and recognition. The steering or directing process occurs primarily in terms of preperceptual events rather than in perception itself. Klein (1956, pp. 190-191) therefore suggests cognitive attitudes that influence perceptual organization at the receptor level. These cognitive attitudes represent central regulatory processes, and thus represent higher order feedback for the control of proximal organization. These proposals are closely related to the position of Krech and Crutchfield (1948, pp. 76-146) and Krech (1949).

Integration of Perceptual Theory with Evidence for Sensitivity to Anger and Intimacy Cues in Schizophrenia

Several factors should contribute to the perception of cues giving rise to impressions of anger and love: the readiness or accessibility of categories for classifying

these cues; whether the individual perceiving the cues belongs to the good premorbid schizophrenic, poor premorbid schizophrenic, or normal group; and the amount of information carried by the cues themselves. The division of subjects into good and poor premorbid schizophrenics and into normals makes it possible to study the differing accessibility of categories of love and anger since it is believed that these groups will differ in terms of their readiness to perceive stimuli suggestive of love and anger. The previous review of the theories of Cameron (1938a; 1938b; 1939; 1946; 1947; 1951), Sullivan (1949a; 1949b; 1949c; 1953; 1954; 1956), and Fromm-Reichmann (1939; 1942; 1946; 1947; 1948; 1950) would tend to substantiate the fact that schizophrenics do differ from normals in terms of the readiness to perceive love and anger cues. The defense against anxiety arcused by such cues would lead to a relative inaccessibility of the categories necessary to define and delimit love and anger and therefore to lowered recoghition and awareness. One behavioral consequences of such inaccessibility, according to Bruner (1957; 1961), is a narrowed range of acceptance. This would be similar to the expectations of the above theorists in terms of withdrawal and avoidance behavior in the schizophrenic. The empirical

research cited above substantiates the view that the schizophrenic's readiness to recognize anger is restricted, but does not provide too much information in terms of cues of love. While recognition (i.e. categorization) of love and anger cues is avoided, sensitivity (i.e. registration) to such cues is indicated by the behavioral consequences. Since Bruner (1957) states that accuracy of perception is based on categorization that leads to appropriate consequences, inaccurate perception (i.e. failure in recognition) would lead to different behavioral consequences. In the schizophrenic, rather than categorize love and anger cues appropriately leading to recogntion, there is a different result (i.e. avoidance or withdrawal). The occurence of the withdrawal behavior indicates that there is registration of these stimuli. Bruner's (1957) gating process and Klein's (1956, pp. 190-191; 1959) preperceptual set provide mechanisms that suggest the registration of stimuli without recognition, and these concepts are directly related to Cameron's (1951, pp. 283-306) conception of reaction sensitivity as well as to Sullivan's (1956, pp. 38-64) selective inattention.

Phillips (1953) and Rodnick and Garmezy (1957) have shown that schizophrenic subjects can be categorized in terms of the adequacy of premorbid adjustment.

Good premorbid schizophrenics, in general, react in a manner that is more similar to the performance of normals than poor premorbid schizophrenics. This scale (Phillips, 1953) rates subjects in terms of recent sexual adjustment, socio-sexual life during adolescence, socio-sexual adjustment in recent life, and interpersonal adjustment adjustment both past and present. The good premorbid schizophrenic, therefore, shows more adequacy in/terms of close intimate relationships to other people than the poor premorbid schizophrenic (i.e. less anxiety), but not necessarily as appropriate an adjustment as the normal subject. In this respect, the readiness to perceive love cues (i.e. high love scene) would differ for normals and poor premorbid schizophrenics, but the accessibility of appropriate categories probably would not differ significantly for normals and good premorbid schizophrenics. Buck (1960) has shown that normal subjects and good premorbid schizophrenics do not differ in terms of the perception of simulated love cues. While there is no experimental information about poor premorbid schizophrenics, the low ratings on the Phillips Scale indicate more difficulty in socio-sexual adjustment in the past leading to the expectation of less adequacy in dealing with such cues.

Since low readiness to perceive is related to constriction of category limits (Bruner, 1957), the poor premorbid can be expected to be impaired in this respect.

In terms of the anger category (i.e. high anger scene), Buck (1960) has shown that the good premorbid schizophrenic differs significantly from matched normal subjects in terms of reporting impressions of anger. Therefore there are indications that the category of anger is less accessible in these subjects (i.e. stimuli which give rise to impressions of anger in normal subjects tend not to be reported as anger by schizophrenics). The severity of disturbance in the poor premorbid schizophrenic would indicate even less accessibility to categories for classifying anger than in respect to the good premorbid. Although the Phillips Scale (Phillips, 1953) is primarily based on love-relationships, severe impairment rated on this scale (i.e. poor premorbid) would be expected to relate to hostility in interpersonal relations.

When the amount of information is less adequate in terms of the external environment, Bruner (1957) suggests that the individual's ability to categorize is more influenced by personal idiosyncratic needs. In addition, with less information and/or less consistent

information there is less chance that these cues would elicit anxiety. Therefore it can be expected that there will be no differences between normals, good premorbid schizophrenics, and poor premorbid schizophrenics under these conditions (i.e. medium love and anger scenes).

Statement of the Problem

The purpose of this study is to compare the responses of normal subjects, good premorbid schizophrenics, and poor premorbid schizophrenics to four simulated scenes of social interaction consisting of two scenes of love and two scenes of anger. On the basis of previous work (Buck, 1960; Kates & Buck, 1958; Kates & Buck, 1959) these scenes can be characterized as high love, medium love, medium anger, and high anger. College students and general medical patients more frequently write stories and rate the high love scene as a scene of love than they do the medium love scene. In the same manner, these same groups write stories and rate the high anger scene as a scene of anger more frequently than they do the mild anger scene. The cues in the high love and the high anger scenes are considered to present more consistent information and more information than the mild anger and mild love scenes thus giving rise to more frequent stories and ratings of love and anger.

It is expected that normals and good premorbid schizophrenics will not differ on the high love scene while they will differ on the high anger scene. The

poor premorbid schizophrenics, however, are expected to differ from both normals and good premorbid schizophrenics on the high love and high anger scenes. It is anticipated that the three groups will not differ on both of the scenes of medium anger and love./

The differences predicted may also be reflected in terms of the intensity of the emotions reported. That is, the schizophrenic group may reduce the intensity of the emotions expressed in their stories and ratings as well as avoid the qualitative character of these cues (i.e. love and anger). The basis for this conception is Schlosberg's (1952, 1954) differentiation of qualitative and intensity dimensions for dealing with expressive emotions.

Hypotheses

1. Good premorbid schizophrenics when compared with normal subjects in their evaluation (i.e. ratings and stories ranked for love-anger) of four scenes of simulated social interaction:
    a. will differ significantly on the high anger scene by responding with less anger;
    b. will not show significant differences on the high love scene;
    c. will not show significant differences on the medium love and medium anger scenes.

2. Poor premorbid schizophrenics when contrasted with good premorbid schizophrenics in terms of their evaluation (i.e. ratings and stories ranked for love-anger) of four scenes of simulated social interaction:
    a. will differ significantly on the high love scene by responding with less love:
    b. will differ significantly on the high anger scene by responding with less anger:
    c. will not show significant differences on the medium love and medium anger scenes.
3. Poor premorbid schizophrenics when compared with normal subjects on the basis of their evaluation (i.e. ratings and stories ranked for love-anger) of four scenes of simulated social interaction:
    a. will show significant differences on the high love scene by responding with less love;
    b. will differ significantly on the high anger scene by responding with less anger;
    c. will not show significant differences on the medium love and anger scenes.
4. Performance on all four scenes of simulated social interaction (high love, medium love,

medium anger, high anger) will be rank ordered in terms of adequacy of previous social adjustment for the three diagnostic groups (i.e. normals, good premorbid schizophrenics, and poor premorbid schizophrenics). Thus good premorbid schizophrenics will show less anger and love on each of the four scenes than normals, but more than poor premorbid schizophrenics.

Method

Procedure

Each of four scenes of simulated social interaction was shown to 36 subjects composed of 12 poor premorbid schizophrenics, 12 good premorbid schizophrenics, and 12 matched normal controls. There were 48 subjects in each of the three groups, poor premorbid schizophrenics, good premorbid schizophrenics, and matched normal controls making a total of 144 subjects. The four scenes of simulated social interaction consisted of a high love scene, medium love scene, medium anger scene, and high anger scene which were presented to the subjects by means of films.

Each film was presented to groups of three to six subjects at one time who were seated in a single row of chairs twelve feet from the screen. All subjects in each of these presentations were from one of the diagnostic groups, and viewed one of the simulated scenes of social interaction. Although a regular schedule could not be followed due to administrative difficulties, the different groups were distributed in terms of time of day and the days of the week. Therefore short term occurrences on the ward should not have unduly affected

any one group. Subjects from the same ward were run on the same day, although distributed among the different experimental groups, in order to prevent communication between subjects. In order to reduce the influence of motivational factors, rapport was established with the schizophrenic subjects prior to the presentation of the film. Further, the procedure was explained and the importance of the study stressed. This attempt to equalize motivational factors has been suggested by Rodnick and Garmezy (1957).

Apparatus

The film was produced by photographing two rectangular objects four cm. high and two cm. wide. The movements of these objects are entirely on the horizontal plane. The color of the rectangles is white, and the background consists of a black field. These size, shape and color dimensions are held constant. The rectangles are photographed at a distance of six feet. The film is projected, however, at a distance of twenty four feet. Thus, the projected size of the rectangles is 8.5 cm. high and 4.5 cm. wide.

The scene descriptions are in terms of the original dimensions (i.e. as photographed). The rectangle on the right side of the screen will be referred to

as A, and the rectangle on the left side of the screen will be referred to as B.

1. Scene of high love: A and B are originally 30 cm apart. A and B approach each other at 14.3cm/sec, beginning at the same time and meeting after each has traveled 15 cm. The two rectangles remain together for two seconds, after which they move off towards the initial position of A, moving in physical contact. The final speed of A and B is the same as their original speed.
2. Scene of mild love: A and B are initially 20 cm apart. A begins moving at 14.3cm/sec in the direction of B. B begins to move at 14.3cm/sec after being reached by A, and the two continue to move in physical contact at the same speed in the same direction as A's initial movement. They move 10 cm in physical contact. There is no pause at the time of contact.
3. Scene of high anger: A and B are initially 20cm apart. A begins moving at 75cm/sec in the direction of B. A moves 20cm. A stops. B begins to move at 14.3cm/sec after being reached by A, moving in the same direction as A's original movement. B moves 10cm. There is no pause at

the time of contact.

4. Scene of mild anger: A and B are initially 20 cm apart. A begins moving at 14.3cm/sec in the direction of B. A stops. B begins to move at 75cm/sec, after being reached by A, in the same direction as A's initial movement. B moves 10cm. There is no pause at the time of contact.

These four scenes have been chosen on the basis of the results obtained by Buck (1960) and by Kates and Buck (1958; 1959). The scenes of high love and high anger were found to give rise to consistent impressions. The scenes of mild love and mild anger were found to show definite modal tendencies in these directions, but showed less consistency in these impressions. Extrapolation from previous studies would lead to the expectation of approximately equal intervals between the four scenes for normal subjects.

Subjects

Description: The subjects consist of a group of 48 schizophrenics who have made a good premorbid social adjustment, 48 schizophrenics characterized by a poor premorbid adjustment, and 48 normal subjects. The premorbid history of these patients was judged on the basis of the Phillips Scale (Phillips, 1953). Two raters

evaluated 12 cases in each patient group in order to assess the reliability of the ratings. Phillips (1953) Rodnick and Garmezy (1957), Hellman (1961) and Moriarty (1961) have reported adequate reliability in the use of this scale. The two raters agreed on 23 of 24 subjects in terms of their designation of patients as good premorbid schizophrenics or poor premorbid schizophrenics. The probability of obtaining this degree of agreement by chance alone is 24 times .5 to 24th power. Thus, it can be seen that this degree of agreement is highly significant.

Criteria for the selection of the schizophrenic groups were as follows: cooperative, white males; between the ages of eighteen and forty-five; for whom there is no evidence of extra pathology (i.e. organic involvement, alcoholism, mental retardation, or psychosomatic illness); who have not received ECT in the last three months; and who have not been lobotomized. Criteria for the selection of normal subjects are as follows: cooperative, white, males; between the ages of eighteen and forty-five; for whom there is no evidence of neurosis, psychosis, psychosomatic disturbance, TB, organic involvement, diabetes, alcoholism, or mental retardation.

Matching: The three diagnostic groups, with respect

to the particular movement pattern observed, have been matched on the following variables:

1. Age: Analysis of variance indicates that there is no difference of age between diagnostic groups or between treatment groups (see Table 1). All subjects are between 25 years of age and 44 years of age.
2. Sex: All subjects are males.
3. Abstract Functioning: Table 1 indicates that all groups have been equated in terms of the similarities and block design subtests of the Wechsler Adult Intelligence Scale (Wechsler, (1958). Analysis of variance indicates that there is no difference on either subtest between diagnostic groups or between treatment groups. The range of block design standard scores over all groups is from 4 to 17. The range of standard scores for all groups on the similarities subtest is from 4 to 16.

   Both of these subtests are highly correlated with the Full Scale I.Q. on the W.A.I.S. Wechsler (1958 P. 74) reports a correlation between similarities and full scale of .79 for the age range 25-34, and a correlation of .80 for the age

Table 1

Mean Scores of Normals, Good Premorbid Schizophrenics, and Poor Premorbid Schizophrenics for Age, Similarities Test, Block Design Test, Education, and Socioeconomic Status

	High Love	Medium Love	Medium Anger	High Anger
Age				
Normals	33.50[a]	34.00	34.50	35.17
Good Premorbid Schizophrenics	33.92	33.33	34.42	34.92
Poor Premorbid Schizophrenics	34.58	33.92	34.08	34.33
Block Design Test				
Normals	9.83[b]	9.92	10.17	10.25
Good Premorbid Schizophrenics	9.92	9.83	9.92	9.67
Poor Premorbid Schizophrenics	9.67	10.25	10.08	9.00
Similarities Test				
Normals	10.33[b]	10.33	9.92	10.00
Good Premorbid Schizophrenics	9.33	10.50	10.00	10.25
Poor Premorbid Schizophrenics	9.42	10.33	9.92	10.75
Education				
Normals	11.00[c]	12.25	11.33	11.42
Good Premorbid Schizophrenics	11.08	11.67	11.50	11.50
Poor Premorbid Schizophrenics	11.42	11.17	11.25	11.67
Socioeconomic Status				
Normals	4.58[d]	4.58	4.92	4.75
Good Premorbid Schizophrenics	4.58	4.83	4.92	4.42
Poor Premorbid Schizophrenics	4.75	4.83	4.92	4.58

a. Years of Age
b. Standard Scores
c. Years of Education
d. A seven Point Scale of Occupational Class

range 45-54. The block design subtest (Wechsler, 1958 P. 80) is correlated .76 and .72 with the full scale for the age groups 25-34 and 45-54 respectively. In addition, Maxwell (1957) has found that the similarities and block design subtests correlate .89 with the W.A.I.S. full scale score when they are combined.

4. Education: There is no difference in the level of education between diagnostic groups or between treatment groups as indicated by an analysis of variance (see Table 1). The range for years of education is 6 to 16.

5. Socioeconomic Status: There is no difference in socioeconomic status between treatment groups or between diagnostic groups as indicated by analysis of variance (see Table 1). The measure of socioeconomic status utilized is the subject's occupational class as indicated by the Minnesota Scale of Paternal Occupation (Goodenough & Anderson, 1931). The range of occupational class for all subjects is 1 to 7.

6. Ethnic Origin: All subjects were born in the United States. The parents of the subjects were primarily born in the United States. In 11 of 12 experimental groups (i.e. three diagnostic groups

each divided into four treatment groups), two of the subjects had parents who were born outside of the United States. The 12th experimental group had only one subject with a parent born outside of the United States. If only one of the subjects' parents were foreign born, he was still classified as having parents born outside the United States. Of the foreign born parents 48% came from Eastern Europe, 35% from Southern Europe, and 17% from Western Europe.

Instructions: The results of Michotte's (1950) studies and the Heider and Simmel (1944) study would seem to justify the use of instructions telling the subjects to regard the objects as people. These studies indicate that large numbers of subjects refer to similar types of objects as animated beings without such instructions. In the case of Heider and Simmel (1944) all but one of the subjects made this assumption without such a preparatory set. With this initial structuring of the situation the subjects impressions were obtained by two methods.

1. The subjects were first requested to write a story about the interaction. They are asked to look at the objects as if they were people, and

to write a story about them telling what they are doing and feeling. This method attempts to get at the subject's impressions while keeping the structuring of their answers to a minimum. The form used is presented in Appendix I.

2. The subjects were next requested to rate the scene on a fifteen item, numerical rating scale. The items are fifteen dimensions which are applicable to social interactions characterized by love and anger. This represents a more objective, although more highly structured technique, for obtaining information about the subjects impressions. The rating scale is reproduced in Appendix II. The selection of these items is based on the use of the most consistent items from the studies of Kates and Buck (1958; 1959) and Buck (1960).

Results

Rating Scale

The analysis of the rating scale is in terms of a factorial design analysis of variance with two variables. One variable consists of the diagnostic category (i.e. normals, good premorbid schizophrenics, and poor premorbid schizophrenics). The second variable consists of the four scenes of simulated social interaction (i.e. high love, medium love, medium anger, and high anger). All ratings for each subject on each scene were summed since the work of Buck (1960) has indicated that the ratings do not differ in terms of the responses of subjects similar to those used in this study. The breakdown of the sources of variance, the error term and the degrees of freedom of this design are presented in Table 2.

Table 2 indicates that the main effects for diagnosis are not significant. That is, there are no overall differences between normals, good premorbid schizophrenics and poor premorbid schizophrenics when their ratings are summed over all of the simulated scenes of social interaction. There is a significant difference between the four scenes (i.e. high love, medium love, medium anger, and high anger). These main effects are of little

Table 2

Analysis of Variance for Normals, Good Premorbid Schizophrenics, and Poor Premorbid Schizophrenics on The Four Scenes of Simulated Social Interaction for The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Diagnostic Group (D)	2	27.38	13.69	.07	---
Scenes (S)	3	7595.63	2531.88	12.54	.001
D X S	6	4013.35	668.89	3.31	.005
Error	132	26647.58	201.87		
Total	143	38283.94			

Table 3

Means and Standard Deviations for The Rating Scale Data for Normals, Good Premorbid Schizophrenics, and Poor Premorbid Schizophrenics on The High Love, Medium Love, Medium Anger, and High Anger Scenes

	Normals	Good Premorbid Schizophrenic	Poor Premorbid Schizophrenic
High Love			
Mean	41.42	45.42	51.83
S D	8.03	7.20	12.30
Medium Love			
Mean	44.67	50.75	43.42
S D	10.16	13.34	16.09
Medium Anger			
Mean	53.92	59.75	65.50
S D	15.84	12.85	16.08
High Anger			
Mean	71.92	60.25	52.92
S D	18.31	18.57	16.14

importance, however, in terms of the present hypotheses.

The interaction of diagnostic groups with scenes is significant at the .005 level (see Table 2). Thus normals, good premorbid schizophrenics and poor premorbid schizophrenics do not respond in a similar manner with respect to the four scenes of simulated social interaction. An analysis of the meaning of this interaction is dependent upon testing the simple effects of both variables. While the assumptions of normality and homogeneity of form are considered adequate for this interaction (Lindquist, 1956, pp. 78-90), the assumption of homogeneity of variance may be questioned. The ratio of the lowest variance to the highest variance for the groups of the interaction is 1 to 6.6. Since this degree of heterogeneity of variance is less than that reported in Norton's study (Lindquist, 1956, p. 81), raising the criterion for significance from .05 to .025 would adequately meet any objections. It can be seen by referring to Table 2 that the interaction of diagnostic groups with scenes is still significant even with this more rigid criterion. Analysis of the meaning of this interaction can be made by considering the simple effects for diagnostic groups and for scenes (Lindquist, 1955, pp. 213-214). Since the groups in the interaction

show a relatively high degree of heterogeneity of variance, the most appropriate test of the simple effects is to analyze each effect by means of its own error term rather than by the pooled error term.

Table 4 indicates that there is a significant difference in the manner in which normals, good premorbid schizophrenics and poor premorbid schizophrenics rate the high love scene. No differences between means are found by Tukey's gap test (Edwards, 1955, pp. 330-332). Tukey's straggler mean test (Edwards, 1955, pp. 332-334), however, significantly separates the mean rating of poor premorbid schizophrenics (51.83) from the mean ratings of good premorbid schizophrenics (45.42) and normals (41.42). The Z value of 2.10 with 33 degrees of freedom is significant at the .05 level. This shows that poor premorbid schizophrenics give ratings less indicative of love than good premorbid schizophrenics or normals.

There is also a difference in the mean ratings of the diagnostic groups on the high anger scene (see Table 5). Tukey's gap test does not separate any of the means in terms of significant differences. The straggler mean test separates the mean rating of normal subjects (71.92) from the means of good premorbid schizophrenics

(60.25) and poor premorbid schizophrenics (52.92). The Z value of 2.05 is significant at the .05 level (with 33 degrees of freedom). It is evident that both schizophrenic groups rate the high anger scene in a manner that indicates less anger than normal subjects.

Tables 6 and 7 indicate that there are no differences between normals, good premorbid schizophrenics, and poor premorbid schizophrenics in terms of the manner in which they rate the medium love scene or in terms of their ratings of the medium anger scene.

The simple effects of scenes were also analyzed to provide additional (indirect) evidence for the hypotheses. The mean ratings of normal subjects on the four scenes of simulated social interaction differ significantly (see Table 8). The order of magnitude of the means is in the expected sequence: high love scene (41.42), medium love scene (44.67), medium anger scene (53.92), and high anger scene (71.92). The only scene which separates out as a different subgroup is the high anger scene. A significant gap (Edwards, 1955, pp. 330-332) of 11.03 differentiates the high anger scene from the other three scenes. No further differentiation can be made between means by either the straggler mean test or the test of excessive variability between means

Table 4

Analysis of Variance for The Simple Effects of The Three Diagnostic Groups on The High Love Scene for The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Diagnostic Group	2	662.72	331.36	3.71	.05
Error	33	2943.50	89.20		
Total	35	3606.22			

Table 5

Analysis of Variance for The Simple Effects of The Three Diagnostic Groups on The High Anger Scene for The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Diagnostic Group	2	2203.56	1101.78	3.51	.05
Error	33	10346.08	313.52		
Total	35	12549.64			

Table 6

Analysis of Variance for The Simple Effects of The Three Diagnostic Groups on The Medium Love Scene for The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Diagnostic Group	2	369.39	184.70	1.06	---
Error	33	5937.83	179.93		
Total	35	6307.22			

Table 7

Analysis of Variance for The Simple Effects of The Three Diagnostic Groups on The Medium Anger Scene for The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Diagnostic Group	2	805.05	402.52	1.79	---
Error	33	7420.17	224.85		
Total	35	8225.22			

(Edwards, pp. 330-335).

Good premorbid schizophrenics differ significantly in terms of the manner they rate the four scenes of simulated social interaction (see Table 9). The rank ordering of these means is as follows: high love scene (45.42), medium love scene (50.75), medium anger scene (59.75), and high anger scene (60.25). Neither the significant gap test nor the straggler mean test differentiate any of the means. Tukey's F Test (Edwards, 1955, pp. 334-335) for excessive variability between these means is significant at the .05 level (with 3 and 44 degrees of freedom). The primary variability here appears to be between the two love and the two anger scenes.

Table 10 indicates that poor premorbid schizophrenics also differ significantly in terms of their mean ratings for the four scenes of simulated social interaction. In terms of magnitude these means are ranked as follows: medium love scene (43.42), high love scene (51.83), high anger scene (52.92), and medium anger scene (65.60). Tukey's significant gap test (Edwards, 1955, pp. 330-335) differentiates the medium anger scene from the other three groups (i.e. significant gap of 12.31). The straggler mean test and the test of excessive variability do not lead to further

Table 8

Analysis of Variance for The Simple Effects of The Four Scenes When Analyzed for Normal Subjects on The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Scenes	3	6747.56	2249.19	11.94	.001
Error	44	8289.42	188.39		
Total	47	15036.98			

Table 9

Analysis of Variance for The Simple Effects of The Four Scenes When Analyzed for Good Premorbid Schizophrenics on The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Scenes	3	1876.25	625.42	3.38	.05
Error	44	8135.67	184.90		
Total	47	10011.92			

Table 10

Analysis of Variance for The Simple Effects of The Four Scenes When Analyzed for Poor Premorbid Schizophrenics on The Rating Scale Data

Source	df	SS	MS	F-Ratio	P-Value
Scenes	3	2985.17	995.06	4.28	.01
Error	44	10222.50	232.33		
Total	47	13207.67			

differentiation between means. It can be seen that there is a reversal of the order of magnitude of the high love scene with the medium love scene, and of the high anger scene with the medium anger scene.

The predicted rank ordering of diagnostic groups (i.e. normals, good premorbid schizophrenics, and poor premorbid schizophrenics) occurred for the high love scene and high anger scene. Reference to Table 3 shows that the mean rating for normals on the high love scene is most in the direction of love (lowest rating) and the poor premorbid schizophrenics' mean rating is least in the direction of love (highest rating). Table 2 also shows that the mean rating on the high anger scene is most in the direction of anger for normals (highest rating) and least in the direction of anger for poor premorbid schizophrenics (lowest rating).

Table 3 shows that the predicted rank ordering of diagnostic groups (i.e. normals, good premorbid schizophrenics, and poor premorbid schizophrenics) occurred on the medium anger scene, but the direction of this sequence is contradictory to the original prediction since normals have the lowest mean rating (less anger) and poor premorbid schizophrenics have the highest mean rating (more anger). These differences are not significant

however (see Table 5). Both the expected rank ordering (i.e. normals, good premorbid schizophrenics, and poor premorbid schizophrenics) and the direction of mean ratings fail to occur for the medium love scene as is indicated by Table 3. Poor premorbid schizophrenics have the lowest mean rating (high love) on the medium love scene, and good premorbid schizophrenics have the highest mean rating (low love). These differences are not significant (see Table 5).

Stories Ranked In Terms of Love and Anger

Table 11 indicates that there are significant differences between diagnostic groups in terms of the sums of the averaged ranks of two judges on the scene of high love. The gaps between normals (162.75), good premorbid schizophrenics (212.00), and poor premorbid schizophrenics (291.25) would all appear to contribute highly to the significant H value (see Table 11) although the difference between good premorbid and poor premorbid schizophrenics is larger. These results are consistent with the data for the rating scale and with the hypotheses. Since the correction available for ties between ranks would increase the value of H (Siegel, 1956, pp. 189-192) significant results were not corrected. There is little reason to correct values that

Table 11

The Sums of Ranks for The Stories Given on The Four Scenes by The Diagnostic Groups In Terms of Love or Anger

	Normals	Good Premorbid Schizophrenics	Poor Premorbid Schizophrenics	H^a	P-Value
High Love	162.75[b]	212.00	291.25	6.31	.05
Medium Love	215.50	218.50	232.00	.12	---
Medium Anger	145.50	287.00	233.50	8.02	.02
High Anger	294.25	201.50	170.25	6.24	.05

a. Kruskal-Wallis H Test

b. Only row sums can be compared. Column sums represent independent groups which have not been ranked with respect to each other.

have already achieved an acceptable level of significance. The predicted rank ordering of the groups (i.e. normals, good premorbid schizophrenics, and poor premorbid schizophrenics) as well as the direction of this sequence (i.e. most love for normals and least love for poor premorbid schizophrenics) occurs for the ranking data on the high love scene as well as for the results on the rating scale in support of the hypotheses. Comparison between the ranking of the stories for two judges give rise to a rank order correlation of .94. Since the occurrence of ties tends to increase the rank order correlation (Siegel, 1956, pp. 206-210), all correlations were corrected for ties in order to reduce this spurious inflation. This correlation is significant at the .001 level ("t" is equal to 15.82 with 34 degrees of freedom).

There is no difference between normals, good premorbid schizophrenics, and poor premorbid schizophrenics in terms of the sum of their ranks on the medium love scene. This is consistent with the data from the rating scale and with the hypotheses. Table 11 shows that the rank ordering of the sums of the ranks of the stories and the direction of these sums of ranks is consistent with the hypotheses but not with the rating scale data.

The sums of the ranks for the stories are in the sequence of normals, good premorbid schizophrenics, and poor premorbid schizophrenics, and the direction of this order is for normals to have the highest ranking in love and the poor premorbid schizophrenics to have the lowest ranking in love. The lack of significant differences between groups on both the rating scale and the stories would explain the inconsistency in rank order. The correlation between judges (.92) is significant at .001 for a "t" of 13.85 and 34 degrees of freedom.

The medium anger scene leads to responses differentially for diagnostic groups. Table 11 indicates that the significant Kruskal-Wallis H is primarily a function of differences between all three diagnostic groups: normals (145.50), good premorbid schizophrenics (287.00), and poor premorbid schizophrenics (233.50). This significant difference is not consistent with the hypotheses, or with the rating scale data. The direction of the sums of ranks is similar to the rating scale data in that the schizophrenics respond with more stories of anger than normals do, but both are inconsistent with the hypotheses. The sequence of the sums of ranks for the stories differs from the mean ratings in that the good premorbid schizo-

phrenics give more anger on stories than poor premorbid schizophrenics. The rankings of the two judges correlate .88 (Siegel, 1956, pp. 202-213) on the medium anger scene. This correlation is significant at the .001 level for a "t" of 8.93 (34 degrees of freedom).

The Kruskal-Wallis H Test significantly differentiates the manner in which the different diagnostic groups' stories are ranked on the high anger scene (see Table 11). The gap between normals (294.25) and both schizophrenic groups (good 201.50 and poor 170.25) appears to contribute most to the significance of the differences between groups. Both the direction and order of group differences are consistent with the data from the rating scales and with the hypotheses. Normals, good premorbid schizophrenics, and poor premorbid schizophrenics show decreasing degrees of anger respectively. The rank order correlation of two judges on the high anger scene is .96. This correlation is significant at the .001 level ("t" is equal to 19.80 with 34 degrees of freedom).

Normal subjects' stories, ranked by two judges, differ significantly in terms of the scene observed as indicated by the Kruskal-Wallis H Test (Siegel, 1956, pp. 184-194). Table 12 indicates that the differences

between the average sums of ranks for the four scenes are primarily a function of the differences between medium love (242.75), medium anger (315.50), and high anger (415.25). The differences between high love (202.50) and medium love (242.75) would appear to contribute less to the overall test of significance. These results are consistent with those found on the rating scale. The rank order correlation (Siegel, 1956, pp. 202-213) between the two judges for normal subjects is .94. This correlation gives rise to a "t" value of 18.40 which is significant at the .001 level (46 degrees of freedom).

Good premorbid schizophrenics stories also differ significantly in terms of the specific scene of simulated social interaction observed. The differences between the medium love scene (205.00), the medium anger scene (447.75), and the high anger scene (329.75) contribute most to the significant H value (see Table 12). The differences between the medium love scene (205.00) and the high love scene (193.50) would appear to have less effect on the variance between groups. These results are similar to those obtained on the rating scale data except that the order of the high anger and medium anger scenes are reversed. A rank order correlation of .93 was found for the two judges on the good premorbid

schizophrenics' stories when corrected for tied ranks. The "t" value (16.86) for this correlation is significant at the .001 level (46 degrees of freedom).

The stories of poor premorbid schizophrenics differ significantly when grouped in terms of the scene of simulated social interaction viewed (as indicated by Table 12). The significant Kruskal-Wallis H (Siegel, 1956, pp. 184-194) appears to be primarily a consequence of the gap between the mild love scene (194.00) and the high love (286.00) and high anger (307.50) scenes, and the gap between the high love and anger scenes and the medium anger scene (388.50). These results are consistent with the data from the rating scale. The rank order correlation of .87 (Siegel, 1956, pp. 202-213) between the two raters, when corrected for ties, is significant at the .001 level ("t" = 12.04 with 46 degrees of freedom).

The instructions to the judges were to rank the particular series of stories on a dimension from high love (i.e. love, friendship, happiness) to high anger or determination, placing neutral or blank stories in the center of this dimension (based on the work of Schlosberg, 1952). The judges were told to rank the stories fairly quickly using general impressions, and utilizing the first story if more than one story was present. Finally

Table 12

The Sums of Ranks for The Stories of Normals, Good Premorbid Schizophrenics, and Poor Premorbid Schizophrenics on The Four Scenes of Simulated Social Interaction in Terms of Love or Anger

	High Love	Medium Love	Medium Anger	High Anger	H[a]	P-Value
Normals	202.50[b]	242.75	315.50	415.25	11.12	.02
Good Premorbid Schizophrenics	193.50	205.00	447.75	329.75	18.26	.001
Poor Premorbid Schizophrenics	286.00	194.00	388.50	307.50	8.15	.05

a. Kruskal-Wallis H Test

b. Only row sums can be compared. Column sums represent independent groups which have not been ranked with respect to each other.

the judges were told that ties between stories were acceptable, but large numbers of ties should not be made unless necessary.

Stories Ranked In Terms of The Intensity of The Emotion Expressed Independently of The Qualitative Type of Emotion

It might be suggested that the schizophrenics' avoidance of cues of love and anger indicated above can be explained by means of a reduction of the intensity of the emotions expressed. To assess the contribution of the extremeness or intensity of the emotions expressed, an additional series of rankings were made on the stories.

There is no indication that normals differ, in the intensity of the emotion expressed, in terms of the stories they give to the four scenes of simulated social interaction (see Table 13). That is the average sum of ranks for two judges ranking the stories of normal subjects in terms of the intensity of the emotion expressed, do not differ significantly when evaluated by means of the Kruskal-Wallis H Test (Siegel, 1956, pp. 184-194). Similar evaluations of the stories of good premorbid schizophrenics and poor premorbid schizophrenics fail to find significant differences (see Table 13). All of these H values were corrected for the number of ties

Table 13

The Sums of Ranks for The Stories Given by Normals, Good Premorbid Schizophrenics, and Poor Premorbid Schizophrenics on The Four Scenes of Simulated Social Interaction for The Intensity of The Emotion Expressed

	High Love	Medium Love	Medium Anger	High Anger	H[a]	P-Value
Normals	350.25[b]	259.50	335.50	230.75	4.28	---
Good Premorbid Schizophrenics	304.25	289.25	256.75	325.75	1.07	---
Poor Premorbid Schizophrenics	342.00	312.50	239.50	282.00	2.45	---

a. Kruskal-Wallis H Test

b. Only row sums can be compared. Column sums represent independent groups which have not been ranked with respect to each other.

(Siegel, 1956, pp. 188-192). The rank order correlations (Siegel, 1956, pp. 202-213) between the two judges are as follows: normals .57, good premorbid schizophrenics .72, and poor premorbid schizophrenics .82. All correlations were corrected for ties (Siegel, 1956, pp. 206-210). The "t" value for the correlation between the two judges' rankings of the stories of normal subjects is 4.69 which is significant at .001 level (46 degrees of freedom). The "t" value of 7.14, for the correlation of the two judges on the stories of good premorbid schizophrenics, is significant at the .001 level (46 degrees of freedom). Finally, the correlation between judges on the stories of poor premorbid schizophrenics is significant at the .001 level ("t" of 9.42 with 46 degrees of freedom). Therefore there is adequate agreement between judges although the results are nonsignificant.

When the stories for the high love scene, the medium love scene, the medium anger scene and the high anger scene are ranked separately, there are no differences in intensity between diagnostic groups as indicated by the four Kruskal-Wallis H Tests (Siegel, 1956, pp. 184-194). All of these H values were corrected for ties. The small H values shown in Table 14 preclude any attempt to evaluate trends of these data. The agreement between

Table 14

The Sums of Ranks for The Stories Given on The High Love Scene, The Medium Love Scene, The Medium Anger Scene, and The High Anger Scene for The Diagnostic Groups In Terms of The Intensity of The Emotion Expressed

	Normals	Good Premorbid Schizophrenics	Poor Premorbid Schizophrenics	H[a]	P-Value
High Love	196.00[b]	220.50	249.50	1.08	---
Medium Love	190.75	236.00	239.25	1.10	---
Medium Anger	255.50	213.75	196.75	1.37	---
High Anger	178.50	266.00	221.50	2.87	---

a. Kruskal-Wallis H Test

b. Only row sums can be compared. Column sums represent independent groups which have not been ranked with respect to each other.

two judges' rankings on the high love scene correlate .76 (Siegel, 1956, pp. 202-213). This correlation is significant at the .001 level ("t" is equal to 6.15 with 34 degrees of freedom). Two judges' correlate .68 in terms of the manner in which they rank the stories of the three diagnostic groups on the medium love scene. This rank order correlation is significant at the .001 level ("t" is equal to 5.39 with 34 degrees of freedom). The two judges' correlate .93 in terms of the manner in which they rank the stories for intensity of the emotion expressed on the medium anger scene. The significance of this correlation, as evaluated by a "t" value of 14.49 and 34 degrees of freedom, is significant at the .001 level. Finally, two judges obtain a rank order correlation of .82 when they rank the stories of the high anger scene. A "t" value of 8.32 indicates that this correlation is significant at the .001 level (34 degrees of freedom). All of the above rank order correlations were corrected for tied ranks. Again it can be seen that the agreement between judges is adequate although there are no differences between groups in terms of the intensity of the emotions expressed in their stories.

The instructions given to the two judges for ranking on a dimension of the intensity of the emotion expressed

(derived from Schlosberg, 1954), were to rank the stories fairly rapidly in terms of general impressions. The raters were cautioned to base their rankings on overtly expressed emotions whenever possible (i.e. attention to the adjectives used in the stories). It was stressed that the ranking was to be based on intensity of emotion without regard to the type of emotion expressed. Where one type of emotion was felt to be more intense than another type it was to be ranked higher, but this judgement was determined independently by the two judges. If more than one story was given, the judges were instructed to use the first story. This type of response is not very frequent, but would detract from the correlation between judges. In addition, the judges were instructed that they could consider stories as being tied in rank, but were discouraged from forming large groups of ties unless they felt they could not discriminate within such groups.

Discussion

The first hypothesis is substantially supported by the ratings and by the stories ranked on a dimension of love and anger. Good premorbid schizophrenics differ significantly from the normal subjects on the high anger scene, but not on the high love, medium love, and medium anger scenes. There is, then, clear evidence for strong avoidance of anger on the high anger scene, and a failure to find evidence for strong withdrawal or avoidance on the high love scene for good premorbid schizophrenics. These results on the high love and high anger scene replicate Buck's (1960) study. Since love stimuli are less anxiety producing for good premorbid schizophrenics, due to their relative adequacy in intimate interpersonal relations, there is less avoidance on the high love scene than on the high anger scene. That there is some withdrawal on the high love scene, is substantiated by the fact that the predicted rank order (hypothesis four) of the good premorbid's ratings and stories occurs (i.e. in the direction of less love for good premorbid schizophrenics than for normals). This rank order of functioning is the same as that previously found by Buck (1960).

Here we are dealing with a group of schizophrenics who have attained some degree of success in close intimate interpersonal relations, but who are of only tenuous stability in relation to hostile aspects of social interactions. Even though good premorbid schizophrenics are relatively successful in close interpersonal relations, there is sufficient difficulty in these relations to consistently elicit moderate avoidance (i.e. non-significant) in response to cues suggestive of love.

The expectation of anxiety and avoidance in relation to cues of love and anger is based on the observations of Cameron (1938a; 1938b; 1939; 1946; 1947; 1951), Sullivan (1949a; 1949b; 1949c; 1953; 1954; 1956), and Fromm-Reichmann (1939; 1942; 1946; 1947; 1948; 1950) as well as many of the experimental studies surveyed above. Bruner (1957) suggests that anxiety leads to a constriction of the range of acceptance and therefore to difficulty in categorizing cues giving rise to anxiety. In his system failure to categorize appropriately is equivalent to low perceptual readiness or failure to recognize the meaning of cues (i.e. avoidance). In addition, the greater the anxiety elicited by the cues the greater the avoidance expected. The avoidance behavior of the good premorbid schizophrenics on the

high love and high anger scenes therefore, can be viewed as relative to the degree of anxiety produced by love and anger cues.

One might propose here a gating process (Bruner, 1957; Bruner, 1961) or a perceptual set (Klein, 1956, pp. 140-160; Klein, 1959) whereby there is a sensitivity (i.e. registration) to the implications of love and anger cues without recognition of these cues. This hypothesis is not tested directly in this experiment, but the sensitivity to those cues is demonstrated by the occurrence of the predicted avoidance even when the cues are just abstract figures. The security operation of selective inattention, suggested by Sullivan (1956, pp. 38-64) is a similar mechanism which is considered to be indicative of sensitivity to environmental events and yet controls the percepts which attain recognition. This mechanism is considered to be of critical importance in schizophrenia. Cameron's (1951, pp. 283-306; 1947, pp. 485-489) conception of reaction sensitivity leading to withdrawal behavior is also proposed as functioning in a similar manner in the schizophrenic.

There are, in general, nonsignificant and inconsistent differences between normals and good premorbid schizophrenics on the medium love and anger scenes.

The information available to the normals is less and/or less consistent with the impressions of love or anger on the medium scenes (Kates & Buck, 1958; Kates & Buck, 1959). This is opposed to the high love and anger scenes where the cues present are more relevant to impressions of love and anger. Bruner (1957) suggests that the rules for categorization of input are more difficult to apply with low amounts of information. Therefore, the meaning (i.e. appropriate categorization) of the medium scenes is less frequently love or anger for normal subjects. Since the medium love and medium anger scenes are less suggestive of love and anger, there is less chance that anxiety would arise. With no anxiety, or less anxiety, the defence of withdrawal would not be as apt to arise. This failure to elicit anxiety on the medium scenes leads to conclusions similar to those of Rodnick and Garmezy (1957) that schizophrenics are able to function as adequately as normals in categorization unless their tenuous motivational level is disrupted by anxiety. In this study, the medium love and anger scenes do not significantly disrupt schizophrenic performance.

The differences in the number of cues and the consistency of the cues provided on the high and medium scenes are indicated by the work of Kates and Buck

(1958; 1959) and Buck (1960) based on the responses of college students and general medical patients. These studies show that a movement pattern characterized by two rectangles moving in physical contact, slow movement, approaching movement by both rectangles, simultaneous movement and stationary proximity is perceived relatively consistently by normal subjects as a scene of love (i.e. high love scene). The medium love scene differs from the high love scene in terms of the characteristics successive movement, lack of approaching movement by both rectangles, and lack of stationary proximity, but is the same for the attributes of slow movement, and a final movement of the two rectangles in physical contact. Therefore the medium love scene presents less adequate information for categorization. Kates and Buck (1958, 1959) have also shown that a movement pattern characterized by one of two rectangles moving fast, the second rectangle moving slowly, successive movement, lack of stationary proximity, and lack of movement in physical contact is relatively consistently viewed as a scene of anger (i.e. high anger scene). The medium anger scene differs in that the first rectangle moves slowly, and the second rectangle moves fast, but is the same as the high anger scene in terms of the

attributes of successive movement, lack of stationary proximity and lack of movement in physical contact. It can be seen then that the medium anger scene provides less appropriate characteristics for categorization.

In addition to the experimental hypotheses, the above considerations would lead to the expectation that the good premorbid schizophrenics would differ in the manner that they rate and write stories about the scenes of simulated social interaction primarily in terms of separating the two love scenes from the two anger scenes. The degree of avoidance behavior found on the high love and anger scenes would tend to obviate differences from the medium love and anger scenes respectively. These expectations are consistent with the present experiment.

The stories ranked on a love-anger dimension and the rating scale data primarily support the second and third hypotheses. The poor premorbid schizophrenics differ significantly from good premorbid schizophrenics and normals on the high love scene, differ from normals on the high anger scene, and show no differences from the other groups on the medium love and anger scenes. This statement is qualified by the fact that there were significant differences on the medium anger scene, but only on the ranked stories. There is then extreme avoid-

ance indicated by poor premorbid schizophrenics on both the high anger scene and the high love scene. The difference between good premorbid schizophrenics and poor premorbid schizophrenics on the high anger scene is not significant, but it is indicative of greater avoidance by poors since the rank order of these groups is in the direction predicted by the fourth hypothesis (i.e. ratings and stories are less indicative of anger for poor premorbid schizophrenics). Since the poor premorbid schizophrenics have little background for demonstrated adequacy in close interpersonal relations, it is expected that love and anger cues would give rise to greater anxiety in these subjects. The work of Cameron, Sullivan, and Fromm-Reichmann cited above for good premorbid schizophrenics, also supports the expectation of anxiety and avoidance in poor premorbid schizophrenics. The higher anxiety leads to greater constriction in the range of acceptance for categorizing love and anger cues (Bruner, 1957). Thus poor premorbid schizophrenics demonstrate low readiness (i.e. recognition) to perceive these cues.
It is apparent that we are dealing with two divergent groups of schizophrenics. Good premorbid schizophrenics, who are relatively adequate in intimate social relations and have a high potential for recovery, can deal some-

what effectively with cues suggestive of love, but show a high degree of avoidance for signs of censure or anger. Poor premorbid schizophrenics, who are highly disturbed in their relations with others and have a poor prognosis for recovery, strongly avoid cues of love and anger.

Again the question may be raised as to whether the sensitivity (i.e. registration) to love and anger cues demonstrated by the withdrawal behavior is dependent on recognition of these cues by the poor premorbid schizophrenics (Bruner, 1957; Bruner, 1961; Klein, 1956, pp. 140-160; Klein, 1959). Occurrence of a consistent response (i.e. avoidance) indicates registration of the stimuli, and the ability to report ratings and stories indicative of love and anger on the medium scenes indicates that the avoidance is probably not just an inability to respond.

As stated in relation to the good premorbid schizophrenics, the established meaning (i.e. categorization by normal subjects) of the medium love and anger scenes is less likely to lead to anxiety. With this lowering of external threat, the poor premorbid would be less likely to express avoidance behavior. With less chance of eliciting anxiety, even the poor premorbid schizophrenic would be able to function more nearly like normals as Rodnick and Garmezy (1957) have suggested.

Indirect support for the suggestion of extreme sensitivity to love and anger cues leading to avoidance in the poor premorbid schizophrenic, is given in terms of the differences in the manner in which they respond to the four scenes of simulated social interaction. The high anger scene is rated and given stories less indicative of anger than the medium anger scene, and the high love scene is rated and given stories less indicative of love than the medium love scene (although all of these differences are not significant). This extreme avoidance, however, does lead to highly similar responses on the high love and high anger scenes.

It was thought that the avoidance behavior of good premorbid schizophrenics, previously demonstrated by Buck (1960), and the avoidance behavior of poor premorbid schizophrenics, might be at least partially due to a decrease in the intensity of responses rather than just an avoidance of the type of emotion characteristic of a particular scene. Schlosberg's (1952; 1954) work in terms of differentiating the intensity of emotion as well as the quality of emotion in pictures of facial expression, was suggestive for this line of investigation. The results indicate, however, that it is primarily the content of the simulated social interaction that is attended to selectively and avoided by the schizophrenics, not the

intensity of such interactions. This emphasizes the relative lack of importance of the perception of intensity in the avoidance responses of schizophrenics, and shows the importance of the qualitative nature of the cues in eliciting avoidance behavior (i.e. love and anger).

Since there is an emphasis placed on Bruner's (1957; 1961) concept of accessibility of categories for classifying relevant cues in perceptual readiness, it might be expected that the differences could be explained in terms of conceptual ability. Of course, the twelve experimental groups are equated in terms of verbal and perceptual-motor concept formation tasks (i.e. similarities and block design), but this does not answer whether intragroup differences affect the responses of schizophrenics. That is, can the adequacy of schizophrenic performance be viewed as a function of high or low conceptual ability. In view of the different treatment and diagnostic groups each of the eight schizophrenic groups were tested separately. Within each group subjects were ranked in terms of their combined similarities and block design standard scores, and high and low I.Q. groups were tested for differences in terms of their ratings of the scenes of simulated social interaction (for raw

data see Appendix IX). The Mann-Whitney U Test (Siegel, 1956, pp. 116-127) indicates that there are no significant differences between low and high I.Q. groups. Appendix IX indicates that the U values are so high that no trends can be seen in the data (except for poor premorbid schizophrenics on the medium love scene). It is felt then that the schizophrenics performance cannot be attributed to differences in conceptual ability. It is of interest that Lothrop (1960) also found no relationship between conceptual deficit on the object sorting test and the Wechsler I.Q. with schizophrenic subjects.

In explaining the data little has been said, so far, about the few inconsistencies in the results. It has been stated that the hypotheses have been primarily confirmed. As far as the high love and high anger scenes are concerned this statement is quite accurate. While the high love and anger scenes give highly consistent results, only medium love and anger scenes give somewhat inconsistent data in terms of the rank order of the diagnostic groups. It is true that the differences between diagnostic groups for the medium scenes are non-significant as predicted, but the direction and rank order of these groups tends to vary with the type of

response (i.e. ratings or stories). One basis for the greater inconsistency here is the fact that one would expect more contradiction in a situation where the critical cues are fewer and/or less consistent. Bruner (1957) indicates a similar point of view when he suggests that this type of situation leads to greater influence by each individual's idiosyncratic wishes and fears on his categorizations. In addition Bruner (1957) suggests that the rules for categorizing cues are more difficult to use with less information. Inconsistency between response measures can be expected under these conditions.

One interesting question arising from these data is whether the avoidance responses of schizophrenics function within the awareness of these subjects? The problem is in assessing the point at which the defensive response is initiated. Is there a gating process or preperceptual set which operates below the threshold of awareness as Bruner (1957; 1961) and Klein (1956; 1959) suggest, or is there a central elaboration of a consciously perceived percept which is then withheld from response? A recent review by Inglis (1961) suggests that, even when response suppression is taken into account, perceptual defense phenomena have been shown to

occur in response to anxiety producing cues. This is also consistent with the review of Solley and Murphy (1960, pp. 104-124) who indicate that when a percept is associated with threat or punishment and the person cannot avoid or escape this threat the percept may be denied admission to conscious awareness. A limitation of the time for perception and the time available for response might provide more information. Another problem needing further clarification is the extension of the type of material used to include cues which are more relevant to actual interpersonal interactions. Finally, further work in terms of the development of scenes of simulated social interaction characteristic of love and anger would provide more information about the responses of schizophrenics to minimal cues representative of these emotions. Tagiuri (1960), for example has shown the importance of variations in the direction, uniformity, and angularity of the path followed by the stimulus person in terms of the inferences that are attributed to such persons. Additional scenes of simulated social interaction (i.e. surprise, fear, disgust, and contempt) would provide more information in terms of a more comprehensive analysis of the schizophrenics' social perception.

Summary

A group of 48 normals, 48 good premorbid schizophrenics, and 48 poor premorbid schizophrenics were compared in terms of their ratings and stories in response to four scenes of simulated social interaction. These scenes are designated as high love, medium love, medium anger and high anger as a consequences of the frequency with which normal subjects have rated and written stories about them. Each of the diagnostic groups was divided into subgroups of twelve subjects who viewed only one of the scenes of simulated social interaction. These twelve groups were equated in terms of age, sex, abstract functioning, education, socio-economic status and ethnic origin.

Differences were found between normals, good premorbid schizophrenics and poor premorbid schizophrenics on the high anger scene with normals rating and writing stories most indicative of anger and poor premorbid schizophrenics making ratings and writing stories least in terms of anger (i.e. avoidance). Differences were also found between these groups on the high love scene with normals'stories and ratings most indicative of love and poor premorbid schizophrenics rating and writing

stories least indicative of love. Significant differences were not indicated on the medium love and medium anger scenes. These results were discussed in terms of Bruner's (1957) theory of perceptual readiness modified to deal with the responses of schizophrenics as suggested by the theories of Cameron (1947; 1951), Sullivan (1953; 1954; 1956), and Fromm-Reichmann (1950). It is suggested that anxiety arising from the perception of love and anger cues leads to avoidance and withdrawal responses in schizophrenic subjects. The degree of avoidance is dependent on the previous adequacy of good and poor premorbid schizophrenics in interpersonal relations.

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Appendix I

Name _____ Date _____

Instructions:

You are going to be shown a film about which you will be asked to write a story. We want you to look at the objects as if they were people, and tell us what you think they are doing and feeling. Don't begin writing until the film is finished.

Write your story here. (Do not turn to the next page until you have finished your story.)

When you finish with the story turn to the next page and do all the items.

Appendix II

On the page below you will see a number of words that can be used to describe the film you have just seen. These are set up so that you can check how well they describe the movie. How would you rate the movie with regard to these words? Place a check mark at the point that best describes what happened in the movie. Make sure that you check one place on each and every trait listed below.

An example of how one might rate the length of the movie is as follows:

7. ___ most long
6. ___ very long
5. ___ long
4. ___ average
3. ___ short
2. ✓ very short
1. ___ most short

The person who rated this situation feels that the movie is well below average in length, but is not the most short.

Now go ahead and rate the movie on each of the traits listed.

1. Trustful (Would they have faith in one another, or would they be suspicious and doubt each other?)

7. ___ most trustful
6. ___ very trustful
5. ___ trustful
4. ___ average
3. ___ suspicious
2. ___ very suspicious
1. ___ most suspicious

2. Cheerful (Do they seem to be laughing and happy together, or are they sad and unhappy with each other?)

7. ___ most cheerful
6. ___ very cheerful
5. ___ cheerful
4. ___ average
3. ___ sad
2. ___ very sad
1. ___ most sad

3. Disagreement (Do they have different ideas which are in disagreement, or do they seem to agree with each other?)

7. ___ most disagreement
6. ___ very much disagreement
5. ___ disagreement
4. ___ average
3. ___ agreement
2. ___ very much agreement
1. ___ most agreement

4. Self Interest (Does either of them seem to be interested only in getting something for himself, or do they act as though the other person's feelings are as important as their own?)

7. ___ most self interest
6. ___ very much self interest
5. ___ self interest
4. ___ average
3. ___ cooperation
2. ___ very much cooperation
1. ___ most cooperation

5. Relaxation (Are they relaxed and carefree when they are together, or is there tension and uneasiness?)

7. ___ most relaxation
6. ___ very much relaxation
5. ___ relaxation
4. ___ average
3. ___ tension
2. ___ very much tension
1. ___ most tension

6. Leadership of one by the other (Does one of them try to get his own way almost all of the time, or do they seem to be fairly equal in terms of which one is the leader?)

7. ___ most leadership by one
6. ___ very much leadership by one
5. ___ leadership by one
4. ___ average
3. ___ equality
2. ___ very much equality
1. ___ most equality

7. Not Satisfying (Do they satisfy each other, or don't they like each other?)

7. ___ most unsatisfactory
6. ___ very unsatisfactory
5. ___ unsatisfactory
4. ___ average
3. ___ satisfactory
2. ___ very satisfactory
1. ___ most satisfactory

8. Long lasting (Will they remain together for a long time, or will they soon leave each other?)

7. ___ most lasting
6. ___ very lasting
5. ___ lasting
4. ___ average
3. ___ short
2. ___ very short
1. ___ most short

9. Enjoyment (Do they enjoy being together, or do they find being with each other unenjoyable?)

7. ___ most enjoyable
6. ___ very enjoyable
5. ___ enjoyable
4. ___ average
3. ___ unenjoyable
2. ___ very unenjoyable
1. ___ most unenjoyable

10. Friendly (Do they tend to get along together in a friendly way, or are they unfriendly?)

7. ___ most friendly
6. ___ very friendly
5. ___ friendly
4. ___ average
3. ___ unfriendly
2. ___ very unfriendly
1. ___ most unfriendly

11. Toughness (Do they act very tough and rough with each other, or do they accept each other in an easy gentle and kind way?)

7. ___ most tough
6. ___ very tough
5. ___ tough
4. ___ average
3. ___ gentle
2. ___ very gentle
1. ___ most gentle

12. Loving (Do they show a great deal of affection for each other, or are they angry at each other?)

7. ___ most loving
6. ___ very loving
5. ___ loving
4. ___ average
3. ___ angry
2. ___ very angry
1. ___ most angry

13. Warm sociable (Do they get together and talk easily with each other, or do they hold themselves back and restrain themselves?)

7. ___ most sociable
6. ___ very sociable
5. ___ sociable
4. ___ average
3. ___ restrained
2. ___ very restrained
1. ___ most restrained

14. Working together (Are they able to get things done together, or wouldn't they be able to work with each other?)

7. ___ most working together well
6. ___ very much working together well
5. ___ working together well
4. ___ average
3. ___ working together poorly
2. ___ working together very poorly
1. ___ working together most poorly

15. Aggressive (Do they fight a lot, or do they get along with each other without fighting?)

7. ___ most aggressive
6. ___ very aggressive
5. ___ aggressive
4. ___ average
3. ___ unaggressive
2. ___ very unaggressive
1. ___ most unaggressive

Appendix III

Raw Data for Rating Scale

Good Schizophrenic												
High Love	48*	61	49	37	38	54	48	43	41	38	47	41
Medium Love	57	60	63	35	55	61	34	52	60	58	21	53
Medium Anger	62	66	67	44	62	67	50	78	73	51	64	33
High Anger	60	37	48	60	42	80	95	64	60	59	35	83
Poor Schizophrenic												
High Love	70	73	49	55	45	56	60	35	34	55	41	49
Medium Love	45	52	43	57	53	47	15	28	59	22	32	68
Medium Anger	51	56	58	86	62	48	64	88	49	83	53	88
High Anger	82	50	45	41	48	53	36	78	34	71	40	57
Normals												
High Love	45	44	43	49	27	47	49	28	47	31	45	42
Medium Love	70	49	39	29	41	46	41	52	47	38	47	37
Medium Anger	49	30	47	61	53	65	46	86	34	47	55	74
High Anger	50	66	63	91	91	34	87	83	66	76	93	63

*Sum of ratings for Fifteen Item Rating Scale for One Subject

Appendix IV

Stories Written by Normals, Good Premorbid Schizophrenics, and Poor Premorbid Schizophrenics to The High Love Scene, The Medium Love Scene, The Medium Anger Scene, and The High Anger Scene

1. H-L[a], N[b] Two acquaintances walking along a street mmet, hold a brief discussion and decide to accompany each other.

2. H-L, N Two People uniting or being married and moving away, going on their own.

3. H-L, P-S[c] This story sound like a normal love story. It is a story of two people who had never met till the story began. It is a simple story with no moral except that love conquers all. He met her and they both fell in love. That is all there is to it.

4. H-L, G-S[d] If they were people. Perhapes greating each other or meeting one another.

5. H-L, P-S They were on Main street the traffic was heavy two tough groups one of them decided to enter a bar for the whiskey that big men love. he asked his companion will you come in with me. the companion said sure Jack an they went in. and the street closed in as the bar room doors closed.

6. H-L, P-S There were to Block is see in the pitichure They mouse to-gethed.

7. H-L, N It struck me as if it were two friends meeting and then walking up the street to a bar.

8. H-L, G-S My opinion of the people is they just met after awile and kissed after meeting one another. They are married and couldn't wait to see one another.

a. High Love Scene
b. Normal Subjects
c. Poor Premorbid Schizophrenics
d. Good Premorbis Schizophrenics

9. H-L, G-S It seems to me, that there were two people walking down the street both comming from the opposite direction.

They both stopped and had a talk, than they got together and went along like they were or are good friends, they both seemed satisfied.

10. H-L, P-S

11. H-L, G-S It seems like these two people mite have been a boy and girl meeting and they went somewhere together feeling happy

12. H-L, G-S

13. H-L, N These Two people met on the street And one influenced The other To go with him.

14. H-L, G-S Two people walking on the street meet and talked together a little while and went off together to see a show

15. H-L, P-S A man goes into a room and escorts a woman, from the room out to a corridor.

16. H-L, P-S I thought one was a man, the one on the left, and he was trying to have intercouse with her and he was kind of abrupt so she moved back out of fright. In conclusion I think he doesn't know howe to intercourse with a women. I thin he was mean.

17. H-L, N To people meet on side walk stoped and then both went of toguathe to the angle of screen.

18. H-L, P-S These people would be practicing give and take. The object going away with something for later. Try says the Object the other object says if you will.

19. H-L, G-S If these were people they might have been holding hands.

20. H-L, N One person walk up to his buddy - they talked for awhile then decided to leave together. After they started to leave, they stop to dicuss their problem again.

21. H-L, N Man just arrived from a trip and greeted by the wife, then both left together.

22. H-L, N Two people meet on the street coming from oposite places and have a short conversation & then go off together.

23. H-L, P-S People must be kissing one another then dancing

24. H-L, G-S These were people and they had been separated, but then they reconciled and joined together, and went off in one direction together.

25. H-I, P-S I is a jere zrjumptwin of Elpths of Solpzda Geter of a wzpling plczda.
Dzvdik liflcpade Szvile wuzela

26. H-L, P-S Meeting one another for the first time

27. H-L, P-S Two persons meeting each other.

28. H-L, G-S In this movie two people have met on the sidewalk. One is a woman and the other is a man. One of them could have been shopping. They are man and wife. They join hands and walk away together.

29. H-L, G-S They could be walking down a street going to a store or shopping togeather

30. H-L, N A Boy & GIRI met on the street & walkeD OFF toGetheR, PossiBly to Go the DRUG store FOR A coke.

31. H-L, P-S If these were people it would be like Male and Female coming together and moving hand in hand in unity.

32. H-L, N Boy & Girl Meet on the street, Boy Walks along the street togather, such as Man & Wife.

33. H-L, G-S Couple of people come from left to right walking toward each other, they meet and walk away to the right of the screen

34. H-L, N Two people meeting and going into a building

35. H-I, G-S Shacking hands, Standing next to each other, speacking to each other,

36. H-L, N MAN AND WOMAN meeting on A CORNER AND going somewhere to eat (i.e. DINNER).

37. M-A^{e}, G-S Film showed two open objects and joined closely together.

38. M-A, G-S To people were walking doen The sTreeT ANd They Met each oTher; by cRaSh inTo eAch oTheR. They TheN LeFT & CAME APART.

39. M-A, G-S It doesn't mean anything to me because its too vague. Could be any one of a dozen things. Which is the male? Which is the female? Are they both males or both females? Boys & girls or men & women. What's the point to it? Whats the story?
I think one hit or ran into the other. It could be an accident too.

40. M-A, P-S The two people are playing tag. But in this tag you have to be tagged twice but they are both depressed. One's name is Mable and the other is Raymond. They decided to play tag after they saw the dogs doing it. It is Raymond that tag's Mable that runs to the left of the screen. They are a young couple recently married.

41. M-A, N The man on the right ran up to the girl, threw his arms around her and kissed her.
To the gentlemans suprise the woman was not who he had assumed. The man stood, shocked, as the woman walked away bewildered.

42. M-A, G-S Blocks - Bumping Each Other

43. M-A, G-S

44. M-A, G-S Two people bumping against one another.

45. M-A, P-S I think that if these were people, the first was chasing the second, and the second was running away, trying to escape.

46. M-A, G-S The objects representing people first approach each other and then separate. It is possible that they have argued and separated for that reason.

47. M-A, N It could have been that they met, had a conversation and then parted, with the one goin his separate way.

e. Medium Anger Scene

48. M-A, P-S Two white people kissing.

49. M-A, P-S The object people were shying away from each other. They were non-commucatif (unfriedly).

50. M-A, G-S I just saw a picture where I believe a woman was standing on a corner and was approached by a stranger, somehow she resented his approach and ran the other way

51. M-A, N Two people were on the street. One on the west end of the block & another on the east end. The one on the east end walked over to the one on the west end, stopped to get a light for his cigarette and continued on his way after procuring the light.

52. M-A, P-S The people were going to a baseball game. The people seem to be most happy at the baseball game.

53. M-A, P-S one was standing the other one was in a hurry it seem's he wanted to shake hand's and have a conversation.

54. M-A, N Playing football - The players came in contact, and then one moved away back to his team.

55. M-A, N These two men were in a formation and were given close march, after closing march they were given extend march.

56. M-A, P-S

57. M-A, N This to me was an elevator with people on it first filling up then decending to the bottom floor a pause for the door to open and the the helter and skelter to leave the elevator for parts unknown.

58. M-A, P-S IF inamimate objects were capable of rational understanding and guided action, the "objects" evinced rejection on the one hand, and the desire for companionship on the other, In each case lack of discernment was obvious. The "left" (A) hand "person" from his pricipitate rejection showed lack of patience, mervy, compassion, and the acid test of love, not rooted in the emotions, but in the will. The "right" (B) hand "person" in his haste to find what (A) was unwilling or unable to provide, liewise evinced lack of discernment as

judgment. One does not seek any outlet as road to accomodation or acceptance at the hands of others. The road for each person is both individual and social. "B" guided by emotion, not reason or understanding, sought any haven in the storm. These is but one haven, and one road. Both "A" and "B" appeared blind to both haven & road.

59. M-A, G-S these people were moving back and Fourth

60. M-A, G-S Two people meet on the street, they are old acquaintances. They come up to each other and shake hands. Say, "hello". Then turn and leave each other. They were glad to see each other but didn't love to much to say today.

61. M-A, N I think the people would be working

62. M-A, P-S It was as if one member, being a male approaches the other member being a female and the female resists his advances and retreats from him.

63. M-A, N They was walking & they were swmming in there, 2 people swimming. One ws drowning & the other saved him.

64. M-A, N two peope going along a dark street one taking his time the other in a hurry.

65. M-A, G-S They were talking and arguing. One moved to the other who sidestepped.

66. M-A, N Two people were standing on the side walk waiting for a bus. One of persons called to the another and he went over to see what he wanted. He asked him what time the bus was due and he told him that the bus would be here in few minutes. They both talked about the weather until the bus arrived.

67. M-A, N The man of the house had just arrived home from work. At the front door he was greeted by his wife who kissed him. He then went into the house to relax with the evening paper until dinner was ready.

68. M-A, P-S It looks as if two people meet together then parted again. These People seem to be of normal size.

69. M-A, N They could have been kissing each other good by when the Husband leaves for work.

70. M-A, P-S If the person or block rather, on the right was a person moving the left up to the person and having said somthing to the block on the left or person causing it to move or walk away.

71. M-A, P-S one going after the other other turning awy.

72. M-A, G-S Two people angry at each other and starting to fight.

73. H-A[f], G-S One block is pushing the other block sideways.

74. H-A, P-S the two Black seamed to be pushing against one another. It renind ne of a stoore room, or noving Boxes, or two People chancing one a nother and wacking a stright time.

75. H-A, G-S Id say they were dancing.

76. H-A, P-S If they were people its seems the two blocks pictured would symbolise two people moving from one position to another. Although it doesn't make clear what they were doing perhaps the people were going from home to a diner or to work or to a movie or to visit or any other sort of business as people who live by the law do.

77. H-A, N A person after a nother. Caught up to him or her. only to have them get away from them.

78. H-A, N I think the two people in subject movie were playing football. One man tackled the other.

79. H-A, P-S The people shown in the preceding film were very anxious about going home. Some of them were mental cases of the very most severe type. The are wanting to eat, sleep and join activity groups. Most of them are well feed, but medication and various doctors mechanics makes them want to be cased for and taken care of in a mental hospital. The doctors and their staff provides for these (most ones active) patients. They have various feelings some guilt, overjoyed, Many of the patients are carless about meals, achocal, girgette butts, shaving and the canteen uses. They feel upset at minor remakes about their personalities, likes and dislikes, body movements. Their physical is a mass of nervious tension die to military and hospital life. Generally speaking you can say that the mejority of the men aren't above average in their work.

f. High Anger Scene

80. H-A, N Two people meeting. Male & female. Male 1 embraced? female later female retreated. Could be lovers, or husband and wife.

81. H-A, G-S Well the 2 poles are about 50 ft from the barn opposite the shanty and previous to the elect time we had a misdemeaner.
This is very important because it is the deviding line betwen 2 poles, needless to say they correspond alike on always and the help to the existing situation.,

82. H-A, P-S A man moved close to his sweet heart and tried to get her to kiss him, but she rejected him and moved away.

83. H-A, G-S As to what they were doing it probaly could have been a male and female who were embracing before leaving on a journey.
Or a reunion of either one
Or a accidental meeting of either one.
It could be several or just a temporary case of mistaken ideninity-

84. H-A, G-S If they were people it seems like, either side stepping or getting to get together.

85. H-A, G-S Fighting, because there was physical contact,

86. H-A, P-S Two people met on the street. They shook hands but one fellow was in a great hurry and didn't have time to stop and talk. A quick hello and goodbye. The conversation probably went like, "I'll see you some other time Joe."

87. H-A, N They could have been in fight, at Which one made a run at the other, and had pushed him back. O they could have just bumbed in to each other.

88. H-A, G-S Object on right could have been car driven by person who drove into back of car (which would be object on left) driven by another person.

89. H-A, N The person on the right decided to approach the person on the left who seemed to be waiting for someone.

After the person on the right approached within distance to be recognized the person on the left realized they were not acquainted and did not desire each others company. So the person on the left decided to leave.

90. H-A, N A man and woman appeared on the screen. They were seperated by a short distance. The man was attracted to the woman, and went to her for a closer look. She found his presents upsetting and left.

91. H-A, G-S Two cars parked at a curb. One pulled in as the other pulled out.

92. H-A, P-S It look like to block s coming to gathere and meeting onne and nothere on the sanne line And for the pople theey were trying to get along but having a hard time

93. H-A, P-S These were to people meeting, possibly on a street. The day is windy and sunny. They both have a jolly smile on their faces. When they meet they extend their hands to shake hands.

94. H-A, P-S The people try to send objects. The people would try to also see objects to be people. The world would be better if roses and buttercups would bloom. People would shout with glee. The New York Yankees would have more money to win another World Series. Christman trees would be more brighter with the lights shining more. The bells on the Christman tree would be more prettier to see. Gone With the wind would be enjoyed more when read. I read Gone With The Wind and I think its a good book. The birds would fly faster and eat better. The cows would give sweeter and better milk. More corn to eat too.

95. H-A, G-S looks to me like one people meating one another and thay were most suprised to see each other and Ran and Kissed each other than thay mint have talked to each other When thay separated in the Movie, as showen

96. H-A, P-S The film showed two rectangular blocks about 2 in. by 1 in. standing upright about a foot apart. We can consider these objects as people. The one to the right moves to the left and stands near him. We could say there had been recognition of person A (on the left) by person B.

It could be said that the motivation for movement had been to make conversation (and understanding) effective.
It could also be said that person A called person B for some reason of his own.

97. H-A, N I can associate this with two people - a boy & a girl - or husband & wife - They have just had an argument. It seems that the husband after he looses his argument with his wife or boy is trying to get on the good side of his girlfriend, they want to get together again. But the girls do not want to give in.

98. H-A, N I would say that it would mean to me more like two people passing on information, from one to another.

99. H-A, P-S Two people see each other. They rush up to each other, kiss and then depart.

100. H-A, N It seems as fi one of the people moved next to the other one as if on a park bench and assuming the first one was a male the second one moved away assuming it was female which suggest they were two strangers.

101. H-A, G-S This is the typical boy-girl story. The boy is attracted to the girl and feels that he can approach her and tell her how he feels. She decides to play it shy and coy and temporarily rejects his approaches but still leaves room for him to approach her.

102. H-A, G-S The dots looked like they are pushing the other out of the way

103. H-A, P-S If these were people I think they would be meetting one another, prpbaby shaking hands or even kissing one another

104. H-A, N There were 2 children, Playing in the Park one became angry and struck the other one, causing it to run off crying.

105. H-A, N An employer giving his secratary instructions on whom he will see, and those he does not wish to see.

106. H-A, P-S They would be comming close to one another.

107. H-A, N The film dipicted a hurried, after breakfast goodby kiss, between a commuting business man and his wife.

108. H-A, G-S I don't know any thing about it, doesn't mean nothing to me.

109. M-L^{g}, N Two people not looking were they going and bumping in to one an other

110. M-L, P-S The people could be talking to one another. They could be a man and women talking about tennis. the man might be a enjineer and He could be talking about it to the girl

111. M-L, N It looked like a girl waiting on the corner for her boyfriend, he came up to her, kissed her and walked off

112. M-L, G-S TWO PEOPLE EMBRASING

113. M-L, P-S This film symbolizes The affinity of man and woman and the necessity of uniting themselves for companionship and propagation. It seemed to me that either could not exist without a union. Also, because of the suddeness of the one object toward the other and the quickness they become united impressed me as a union of two people in conflict. This last impression was the least strong of the two.

114. M-L, N To me this looks as if one person were waiting at some predisignated spot for another. The other person arriving and looking around and suddenly noticing the person who was waiting and rushing to him or her as the case may be to greet them in an embrace.

115. M-L, G-S If this were people I would say they would be running together.

116. M-L, P-S one came over to the othr

117. M-L, P-S Male and female warmly greeting each other

118. M-L, N The command was given for the two group to merge. The Right hand merged upon the other rapidly, becoming as one. The two were then as one, superimposed one upon the other.

g. Medium Love Scene

119. M-L, P-S Two persons meet on the street and greet each other.

120. M-L, N First object approaches second, meets it, then pushes it backward. If these were people, the first could be construed as committing act of aggression against second, forcing him backward.
Could also be interpreted as first person approaching second in friendly manner and the two going off together in friendly communication.

121. M-L, P-S If they were people they are empbracing each other.

122. M-L, P-S Two blocks moving together, first seperaly then they moved together.

123. M-L, G-S The first person is standing waiting for someone wondering if the other will show up. When the other appears they go off together.

124. M-L, P-S Two people met on the street and walked together further down the street. The object on the right was a man approaching the woman who was waiting. They seemed to kiss as they met and then walked away.

125. M-L, G-S One person meets the other and they go somewhere together. very friendly people.

126. M-L, P-S The story is of two good peple one is a woman, the other is a man. The woman meet the man alone. They both had many things in common. They married and together they were able to go forward.

127. M-L, N A boy and girl were standing on the same street wondering what to do with their spare time. The boy saw the girl, walked over, introduced himself and they both left together for a walk.

128. M-L, G-S As these objects represent people the action that takes place is an attraction of positive and negative - thus a marriage of the two takes place - reproduction ultimately follows unless some physical defect in either of the male or female is present.

129. M-L, P-S Two parts were Draw en to gather to Form a whole of something

130. M-L, N The object on the left is a girl and the object on the right is a boy. The boy walks over to the girl to ask her to dance. The movie ends before they start dancing.

131. M-L, G-S One object was coming towards a other object

132. M-L, P-S This picture with two opjects coming closer, could be to two old friends coming to see each other.
And they were very glad to meet one another.

133. M-L, G-S These two people met on the street and walked together. They probably were neighbors meeting and talking about differen't things that happened during the day. It was nightime when they met.

134. M-L, N It could be a man going to a friend and the two of them going some place to talk over things of business or sporting intrest. They seem to me that they are very close friends or have know each other a long time

135. M-L, G-S One person ran to greet the other person. a baseball player ran to base.

136. M-L, N This is a story of two people. One peorson walked up to meet his friiend on the street they their walked to the coroner

137. M-L, N It seemed to me that these where two people. meeting or running to meet each other and to me it also seemed they where in a Hurry to meet one another it also look like they almost ran intoeach other

138. M-L, G-S I felt the two squares were a man and a woman - To begin with, they were separate. They Then drew closer together, united, as if in marriage, and went on Their way, together. I felt this action symbolized the meeting and uniting of a man and women in marriage.

139. M-L, P-S our Hearts are restless until they reach or make contact with God.
Man's purpose in life is to know, love, and serve God in this world and in the next.

When He was created by God he was not only endowed with God's Sanctifying Grace, he was also given physical perfection.

Man lost this by disobeying God's Command i.e; "Do not eat of this apple.

After man fell from God's friendship the link was broken. God promised to send His Divine Son to free man from his slavery to sin. In other words complete satisfaction could only be given to God by a God. This is the story that I derive from the film.

140. M-I, N To me the objects represents the human being, both male, & female. Love, and finallity comes marriage which unite the both into one

141. M-L, N If they were people - they could be cambining their path and ways of life and proceding to their goal togeathur

142. M-L, G-S This film shows two objects, or two block joining together.

143. M-L, G-S The people would go for a walk. And then they would be making love with each other. And he would be taking her home, and kissing her good night.

144. M-L, G-S It appeared as though someone were waiting for someone to meet them and when they met they left together

Appendix V

Ranks Given to The Stories on A Dimension of Love-Anger by Two Judges When Ranked Over Diagnostic Categories

	Normals		Good Premorbid Schizophrenics		Poor Premorbid Schizophrenics	
Rank[a]	Judge 1	Judge 2	Judge 1	Judge 2	Judge 1	Judge 2
1.	140ML[b]	140ML	138ML	8HL	31HL	126ML
2.	141ML	2HL	128ML	128ML	3HL	3HL
3.	80HA	107HA	8HL	138ML	113ML	48MA
4.	2HL	21HL	28HL	143ML	126ML	124ML
5.	107HA	69MA	112ML	95HA	139ML	23HL
6.	69MA	67MA	83HA	112ML	23HL	103HA
7.	67MA	114ML	143ML	83HA	121ML	99HA
8.	21HL	32HL	11HL	28HL	124ML	113ML
9.	32HL	111ML	95HA	11HL	103HA	31HL
10.	111ML	141ML	19HL	60MA	99HA	117ML
11.	114ML	134ML	75HA	9HL	48MA	121ML
12.	36HL	80HA	101HA	125ML	132ML	86HA
13.	30HL	41MA	29HL	75HA	93HA	93HA
14.	127ML	63MA	125ML	19HL	117ML	132ML
15.	130ML	30HL	9HL	101HA	52MA	52MA
16.	137ML	36HL	14HL	24HL	76HA	110ML
17.	63MA	22HL	60MA	14HL	5HL	53MA
18.	134ML	7HL	135ML	33HL	40MA	96HA

a. Highest Ranking of Love
b. Indicate Stories Presented in Appendix IV
c. Indicate Ties Between Stories

Rank	Normals		Good Premorbid Schizophrenics		Poor Premorbid Schizophrenics	
	Judge 1	Judge 2	Judge 1	Judge 2	Judge 1	Judge 2
19.	20HL	1HL	35HL	144ML	119ML	5HL
20.	7HL	20HL	4HL	133ML	27HL	76HA
21.	136ML	130ML	133ML	123ML	25HL	25HL
22.	1HL	127ML	33HL	4HL	96HA	119ML
23.	17HL	13HL	144ML	135ML	110ML	122ML
24.	34HL	17HL	123ML	115ML	68MA	68MA
25.	13HL	137ML	24HL	29HL	53MA	27HL
26.	22HL	47MA	37MA	35HL	86HA	15HL
27.	47MA	136ML	142ML	84HA	82HA	106HA
28.	66MA	66MA	81HA	131ML	18HL	116ML
29.	61MA	105HA	108HA	91HA	106HA	129ML
30.	98HA	98HA	43MA	142ML	129ML	18HL
31.	51MA	51MA	12HL	37MA	6HL	139ML
32.	41MA	34HL	59MA	81HA	116ML	6HL
33.	118ML	55MA	131ML	12HL	122ML	94HA
34.	55MA	118ML	91HA	43MA	92HA	26HL
35.	64MA	61MA	84HA	108HA	15HL	56MA
36.	57MA	57MA	50MA	102HA	94HA	10HL
37.	105HA	64MA	42MA	73HA	26HL	92HA
38.	89HA	89HA	102HA	42MA	10HL	40MA
39.	100HA	100HA	73HA	59MA	56MA	49MA
40.	109ML	90HA	88HA	38MA	70MA	82HA

	Normals		Good Premorbid Schizophrenics		Poor Premorbid Schizophrenics	
Rank	Judge 1	Judge 2	Judge 1	Judge 2	Judge 1	Judge 2
41.	90HA	77HA	65MA	50MA	58MA	62MA
42.	97HA	97HA	46MA	65MA	49MA	71MA
43.	54MA	109ML	115ML	46MA	79HA	70MA
44.	78HA	78HA	44MA	39MA	74HA	45MA
45.	104HA	54MA	38MA	88HA	16HL	74HA
46.	77HA	104HA	39MA	44MA	62MA	58MA
47.	120ML	87HA	72MA	85HA	45MA	79HA
48.[d]	87HA	120ML	85HA	72MA	71MA	16HL

d. Highest Ranking of Anger

Appendix VI

Ranks Given to The Stories on A Dimension of Love-Anger by Two Judges When Ranked Over Scenes of Simulated Social Interaction

	High Love		Medium Love		Medium Anger		High Anger	
Rank	1 Judge	2 Judge	1 Judge	2 Judge	1 Judge	2 Judge	1 Judge	2 Judge
1.[a]	2N[b]	2N	113PS	126PS	67N	67N	83GS	95GS
2.	31PS[c]	8GS	126PS	140N	69N	69N	103PS	103PS
3.	8GS	3PS	128GS	138GS	48PS	48PS	99PS	83GS
4.	21N	21N	138GS	128GS	37GS	41N	95GS	75GS
5.	3PS	31PS	140N	114N	60GS	60GS	107N	107N
6.	32N	32N	111N	143GS	52PS	52PS	75GS	99PS
7.	28GS	19GS	114N	111N	66N	66N	106PS	93PS
8.	36N	20N	143GS	124PS	53PS	37GS	101GS	86PS
9.	30N	23PS	124PS	112GS	47N	63N	80N	101GS
10.	11GS	28GS	121PS	121PS	68PS	47N	93PS	84GS
11.	23PS	7N	112GS	134N	51N	53PS	76PS	106PS
12.	20N	11GS	141N	125GS	40PS	51N	86PS	80N
13.	19GS	36N	134N	132PS	61N	68PS	96PS	76PS
14.	9GS	30N	132PS	136N	55N	55N	81GS	96PS
15.	7N	9GS	125GS	141N	41N	64N	94PS	108GS
16.	14GS	1N	137N	127N	57N	57N	108GS	81GS
17.	5PS	24GS	117PS	130N	63N	59GS	91GS	94PS
18.	29GS	22N	130N	133GS	64N	61N	98N	98N

a. Highest Ranking of Love
b. Indicate Stories Presented in Appendix IV
c. Indicate Ties Between Stories

Rank	High Love 1 Judge	High Love 2 Judge	Medium Love 1 Judge	Medium Love 2 Judge	Medium Anger 1 Judge	Medium Anger 2 Judge	High Anger 1 Judge	High Anger 2 Judge
19.	13N	17N	127N	113PS	56PS	43GS	84GS	105N
20.	1N	29GS	135GS	117PS	43GS	56PS	77N	92PS
21.	22N	35GS	136N	123GS	59GS	42GS	92PS	91GS
22.	35GS	5PS	133GS	110PS	49PS	40PS	82PS	88GS
23.	34N	4GS	139PS	137N	58PS	62PS	105N	82PS
24.	33GS	13N	144GS	144GS	46GS	71PS	79PS	79PS
25.	17N	14GS	123GS	119PS	42GS	50GS	100N	77N
26.	4GS	33GS	119PS	115GS	38GS	70PS	89N	100N
27.	24GS	27PS	115GS	135GS	39GS	49PS	74PS	89N
28.	27PS	25PS	110PS	116PS	44GS	58PS	73GS	73GS
29.	25PS	34N	116PS	122PS	54N	46GS	102GS	102GS
30.	15PS	15PS	142GS	118N	70PS	65GS	97N	74PS
31.	6PS	6PS	122PS	139PS	71PS	54N	88GS	90N
32.	26PS	26PS	118N	129PS	65GS	45PS	78N	78N
33.	12GS	12GS	129PS	142GS	45PS	44GS	90N	97N
34.	10PS	10PS	131GS	131GS	50GS	38GS	104N	104N
35.	18PS	18PS	109N	109N	62PS	39GS	87N	85GS
36.[d]	16PS	16PS	120N	120N	72GS	72GS	85GS	87N

d. Highest Ranking of Anger

Appendix VII

Ranks Given For Intensity of Emotion in The Stories by Two Judges When Ranked Over Diagnostic Categories

	Normals		Good Premorbid Schizophrenics		Poor Premorbid Schizophrenics	
Rank	Judge 1	Judge 2	Judge 1	Judge 2	Judge 1	Judge 2
1.[a]	41MA[b]	140ML	72MA	128ML	79HA	79HA
2.	104HA	120ML	85HA	11HL	16HL	3HL
3.	90HA	41MA	65MA	9HL	132ML	16HL
4.	97HA[c]	104HA	46MA	125ML	52MA	58MA
5.	87HA	2HL	50MA	72MA	40MA	40MA
6.	120ML	21HL	95HA	95HA	49MA	49MA
7.	89HA	111ML	8HL	101HA	3HL	113ML
8.	114ML	107HA	11HL	138ML	93HA	23HL
9.	80HA	67MA	125ML	8HL	45MA	117ML
10.	63MA	69MA	101HA	143ML	117ML	48MA
11.	57MA	114ML	60MA	112ML	99HA	121ML
12.	64MA	134ML	9HL	83HA	58MA	93HA
13.	137ML	97HA	39MA	85HA	82HA	52MA
14.	13HL	87HA	38MA	46MA	62MA	132ML
15.	118ML	80HA	44MA	65MA	92HA	62MA
16.	107HA	90HA	143ML	38MA	18HL	82HA
17.	111ML	100HA	83HA	44MA	121ML	126ML
18.	69MA	89HA	112ML	39MA	23HL	99HA

a. Highest Intensity
b. Indicate Stories Presented in Appendix IV
c. Indicate Ties Between Stories

	Normals		Good Premorbid Schizophrenics		Poor Premorbid Schizophrenics	
Rank	Judge 1	Judge 2	Judge 1	Judge 2	Judge 1	Judge 2
19.	67MA	63MA	88HA	24HL	53MA	103HA
20.	77HA	78HA	42MA	28HL	139ML	124ML
21.	54MA	54MA	102HA	19HL	86HA	31HL
22.	78HA	109ML	73HA	50MA	74HA	86HA
23.	109ML	32HL	135ML	33HL	103HA	53MA
24.	21HL	136ML	128ML	123ML	48MA	96HA
25.	134ML	7HL	84HA	144ML	124ML	5HL
26.	20HL	1HL	115ML	60MA	126ML	71MA
27.	2HL	20HL	138ML	4HL	113ML	45MA
28.	141ML	141ML	123ML	135ML	31HL	68MA
29.	140ML	22HL	75HA	35HL	71MA	76HA
30.	1HL	127ML	28HL	14HL	70MA	119ML
31.	136ML	130ML	19HL	29HL	106HA	110ML
32.	36HL	30HL	4HL	133ML	5HL	15HL
33.	7HL	36HL	35HL	75HA	96HA	25HL
34.	30HL	77HA	14HL	115ML	110ML	27HL
35.	32HL	137ML	133ML	84HA	119ML	106HA
36.	130ML	13HL	24HL	59MA	68MA	92HA
37.	127ML	47MA	144ML	37MA	27HL	116ML
38.	100HA	66MA	33HL	131ML	25HL	18HL
39.	47MA	34HL	29HL	142ML	76HA	70MA

	Normals		Good Premorbid Schizophrenics		Poor Premorbid Schizophrenics	
Rank	Judge 1	Judge 2	Judge 1	Judge 2	Judge 1	Judge 2
40.	22HL	17HL	91HA	42MA	15HL	74HA
41.	34HL	51MA	59MA	73HA	116ML	122ML
42.	98HA	98HA	37MA	102HA	129ML	129ML
43.	66MA	105HA	142ML	88HA	122ML	94HA
44.	17HL	57MA	131ML	91HA	6HL	6HL
45.	105HA	64MA	108HA	108HA	56MA	139ML
46.	61MA	61MA	81HA	81HA	10HL	26HL
47.	55MA	55MA	43MA	43MA	26HL	56MA
48.	51MA	118ML	12HL	12HL	94HA	10HL

Appendix VIII

Ranks Given for Intensity of Emotion in The Stories by Two Judges When Ranked Over Scenes of Simulated Social Interaction

	High Love		Medium Love		Medium Anger		High Anger	
Rank	1 Judge	2 Judge	1 Judge	2 Judge	1 Judge	2 Judge	1 Judge	2 Judge
1.[a]	16PS[b]	3PS	120N	140N	72GS	72GS	87N	79PS
2.	3PS	16PS	132PS	120N	65GS	41N	104N	104N
3.	8GS	11GS	125GS	114N	46GS	65GS	85GS	95GS
4.	11GS	8GS	114N	124PS	41N	46GS	79PS	87N
5.	9GS	2N	117PS	121PS	50GS	58PS	82PS	85GS
6.	23PS	23PS	137N	112GS	52PS	40PS	90N	97N
7.	13N	31PS	115GS	111N	62PS	49PS	97N	80N
8.[c]	18PS	21N	135GS	128GS	49PS	50GS	95GS	82PS
9.	24GS	9GS	140N	113PS	40PS	48PS	99PS	90N
10.	2N	28GS	143GS	125GS	58PS	69N	93PS	103PS
11.	31PS	19GS	121PS	117PS	60GS	67N	77N	107N
12.	20N	7N	124PS	132PS	63N	62PS	92PS	83GS
13.	22N	14GS	112GS	143GS	45PS	63N	86PS	99PS
14.	1N	22N	111N	109N	69N	60GS	101GS	101GS
15.	7N	1N	139PS	137N	48PS	52PS	89N	78N
16.	30N	30N	123GS	134N	67N	38GS	107N	93PS
17.	5PS	32N	109N	126PS	53PS	54N	83GS	86PS
18.	86N	24GS	128GS	141N	64N	53PS	80N	96PS

a. Highest Intensity
b. Indicate Stories Presented in Appendix IV
c. Indicate Ties Between Stories

	High Love		Medium Love		Medium Anger		High Anger	
Rank	1 Judge	2 Judge	1 Judge	2 Judge	1 Judge	2 Judge	1 Judge	2 Judge
19.	28GS	34N	138GS	138GS	38GS	66N	103PS	75GS
20.	21N	33GS	126PS	130N	71PS	71PS	78N	106PS
21.	32N	17N	113PS	110PS	44GS	45PS	75GS	84GS
22.	14GS	36N	141N	133GS	39GS	70PS	88GS	100N
23.	19GS	20N	134N	119PS	54N	39GS	74PS	89N
24.	35GS	5PS	127N	127N	42GS	44GS	102GS	77N
25.	17N	13N	130N	144GS	55N	64N	73GS	98N
26.	34N	4GS	136N	123GS	70PS	42GS	105N	76PS
27.	46GS	35GS	133GS	136N	47N	51N	84GS	92PS
28.	25PS	25PS	119PS	135GS	66N	68PS	100N	105N
29.	27PS	27PS	110PS	115GS	68PS	47N	96PS	86GS
30.	29GS	29GS	144GS	131GS	51N	37GS	76PS	102GS
31.	33GS	15PS	118N	122PS	61N	55N	98N	73GS
32.	15PS	18PS	116PS	116PS	57N	61N	106PS	74PS
33.	6PS	12GS	122PS	129PS	59GS	59GS	91GS	91GS
34.	26PS	10PS	129PS	142GS	37GS	57N	94PS	94PS
35.	12GS	26PS	142GS	118N	56PS	43GS	81GS	108GS
36.	10PS	6PS	131GS	139PS	43GS	56PS	108GS	81GS

Appendix IX

Raw Data for Rating Scale Separated Into High and Low I.Q. Groups

Good Schizophrenics								Mann Whitney U	P-Value*
High Love									
	High I.Q.	38	38	41	43	47	49	12	--
	Low I.Q.	37	41	48	48	54	61		
Medium Love									
	High I.Q.	35	52	53	58	60	61	17	--
	Low I.Q.	21	34	55	57	60	63		
Medium Anger									
	High I.Q.	44	50	51	62	66	73	13	--
	Low I.Q.	33	62	64	67	67	78		
High Anger									
	High I.Q.	37	48	60	60	64	80	18	--
	Low I.Q.	35	42	59	60	83	95		
Poor Schizophrenics									
High Love									
	High I.Q.	34	49	49	55	56	73	17	--
	Low I.Q.	35	41	45	55	60	70		
Medium Love									
	High I.Q.	15	22	28	32	47	57	6	--
	Low I.Q.	43	45	52	53	59	68		
Medium Anger									
	High I.Q.	51	56	58	86	88	88	10	--
	Low I.Q.	48	49	53	62	64	83		
High Anger									
	High I.Q.	34	36	48	53	57	78	16	--
	Low I.Q.	40	41	45	50	71	82		

*Two Tailed Test

Acknowledgment

The author wishes to thank Dr. Solis L. Kates for his guidance in the formulation and carrying out of this thesis. I also wish to thank Dr. Claude C. Neet, and Dr. Vincent R. Rogers for the helpful suggestions and recommendations they have contributed to this research.

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April 9, 1962